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ARCHITECT

THE MAGAZINE OF THE AMERICAN INSTITUTE OF ARCHITECTS

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→ **ONLINE**

**There's more online at
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Slide shows of AIA Honor Award-winning projects.

More data on the ARCHITECT 50, including the 10 most profitable, sustainable, and design-savvy firms, as well as the 51–100 rankings.

Blaine Brownell's Mind & Matter blog looks at products and materials in development and on the market.

Aaron Betsky's Beyond Buildings blog comments on the impact that design has on our society and culture.

And there is always a constant update of breaking news, new products, slide shows, extra images of the projects you see here in the issue, and more ...



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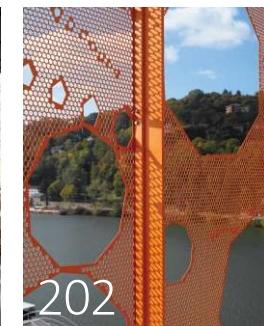


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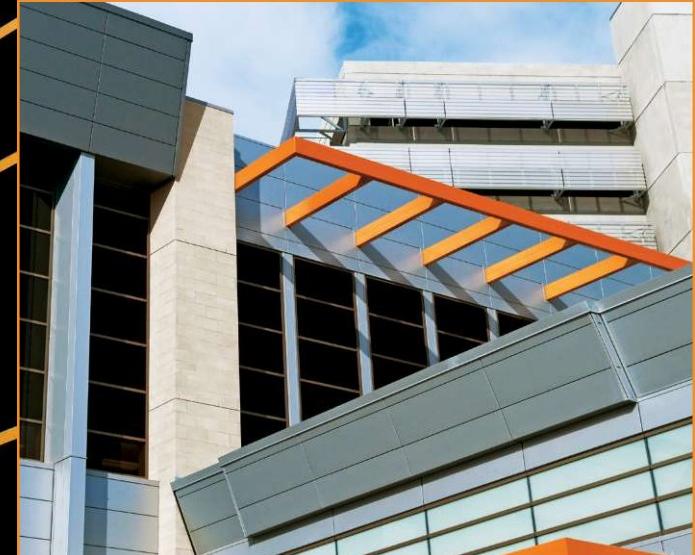
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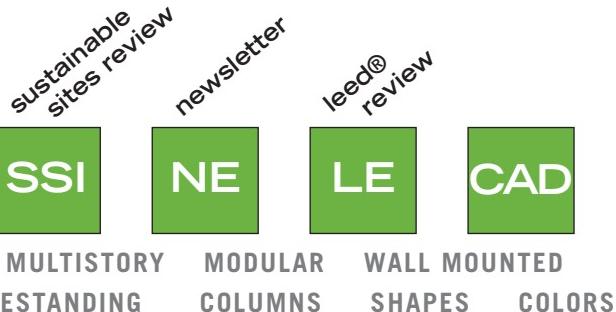
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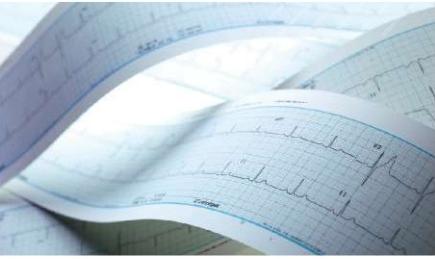
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GOOD TIMES

HOW DO YOU commemorate a failed experiment? Last month, to mark the demolition of the only remaining tower at Chicago's Cabrini-Green public housing project, artist Jan Tichy organized a light show.

Rather counterintuitively, Tichy built the light show around sound: He recorded more than 100 young people telling their stories of growing up in and around Cabrini-Green. Then students from the School of the Art Institute of Chicago used a computer program that translates sound into light to turn the voice recordings into a visual pattern that would play silently across the tower's façade.

For the roughly four weeks it would take to bring the tower down, lights blinked on and off in the windows of 1230 North Burling, seemingly at random, bewildering the occasional police officer and drawing nationwide attention one last time to a less-than-brilliant passage of American, and architectural, history. (A live video feed of the tear-down appeared at projectcabrinigreen.org and as part of an exhibition at the Museum of Contemporary Art Chicago.)

The Chicago Housing Authority (CHA) built Cabrini-Green in stages from 1942 to 1962. Located a few blocks from the Gold Coast, the city's richest neighborhood, Cabrini at one time was home to some 15,000 souls, the most famous being J.J. "Dyn-o-mite!" Evans, a character in the ironically named CBS sitcom *Good Times*.

During my 1970s suburban childhood, I had never met anyone who lived in an apartment, much less in public housing. *Good Times* opened a window for me. Though the show was filmed in Los Angeles, and its portrayal of life in the projects was sanitized for mass consumption, the dramatic narrative was a triumph of realism by the prime-time standards of the era.

Good Times co-creator Eric Monte grew up in Cabrini-Green, and the show's documentary-style credits, shot on location featuring real-life residents, came closest to capturing Cabrini's genius loci: all concrete, asphalt, and chain-link, plus Afros and bell-bottoms. For those 45 seconds at the beginning and end of every episode, reality reigned. (To see for yourself, search YouTube for "good times credits".)

By the 1970s, Cabrini-Green had become infamous as a center of gang activity, for mismanagement by its government landlords, and for the poverty of its mostly black population. And so the place became a symbol of the collective failings of the welfare state, of urban-renewal policies, and, fairly or not, of the Modernist experiment in architecture.

For the past decade, the CHA has been slowly replacing the mid- and high-rise buildings of Cabrini-Green with mixed-income, low-rise townhouses and condominiums, according to a basically New Urbanist master plan by Goody Clancy. This massive undertaking is just one part of the CHA's comprehensive \$1.5 billion

Plan for Transformation, which the authority describes as "the largest, most ambitious redevelopment effort of public housing in the United States, with the goal of rehabilitating or redeveloping the entire stock of public housing in Chicago."

The Plan for Transformation represents more than the replacement of midcentury Modernism by New Urbanism as the dominant planning and architectural model for public housing. It exemplifies a major policy shift at the national, state, and local level, from housing for the poor as a purely public enterprise to a public-private one.

Despite the good intentions of its creators, Cabrini-Green ultimately perpetuated the ghetto in Corbusian garb. "The Plan for Transformation," by contrast, "seeks socioeconomic reform by integrating public housing and its residents into the larger social, economic and physical fabric of the city of Chicago," according to a report commissioned by the MacArthur Foundation from MIT's Department of Urban Studies and Planning.

But what does that mean? It means that most of CHA's new and replacement housing is being built in partnership with private developers, with rich and poor living as neighbors. Though some CHA residents remain in straight-up public housing (notably seniors), many have relocated to the new mixed-income communities. The rest participate in a CHA voucher program that contributes to the cost of renting on the private market.

Left unchecked, either business or government alone can create disaster, as both Chicago's private pre-World War II slums and its Cabrini-Green experiment demonstrated. The Plan for Transformation offers an interesting alternative, an object lesson at a time when laissez-faire Republicans and nanny-state Democrats are fighting over how to trim the federal budget and whether to fund urgent needs such as infrastructure upgrades and clean-energy technology.

The solution is in the mix, not in one-size-fits-all, winner-takes-all extremes. Chicago wanted to reform public housing, so it spread the risks and rewards equally among the public and private sectors. What if deficit hawks cut entitlement programs and raised taxes on the rich? What if the private sector helped underwrite high-speed rail? When it comes to fiscal responsibility and our country's future, everyone should share in the hardships and stand to reap the benefits.

Tichy's light display was a bittersweet elegy to the aspirations and tribulations of Cabrini-Green, its residents and its makers alike. I pray that we will never have to stage a repeat performance.

Neil Gane

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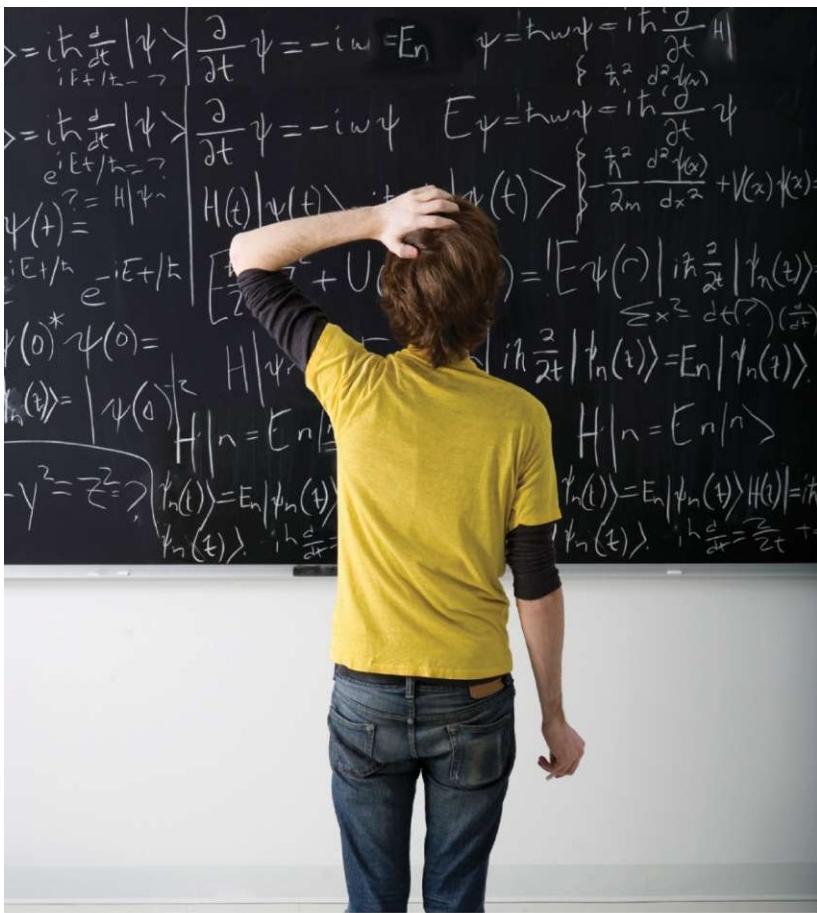
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dialogue

LETTERS

BIG-BOX PARADOX, April 2011

Do you know what amount equals a living wage? I want a really big house and three cars: Whose responsibility is it to pay me enough to "live" according to my desired lifestyle? Is running a register a career or a stepping stone to a better job? Many managers and store owners of McDonald's started out flipping burgers at minimum wage. The only part with which I agree is your concern about art patronage being a kind of money laundering. You're right: Government should stay out of the arts altogether; that includes NPR and Big Bird. With regard to how much money a corporation gives to philanthropy, why do you care? How do you define "philanthropic"? In small towns, Walmarts are known to make generous donations to local causes. *Marti Stokes*

Totally great editorial: Continue hammering other assholes like Walmart. *Stanley Tigerman, FAIA, Chicago*

A DESIRE NAMED STREETCAR, March 2011

Often, the online comments section becomes the launching point for a conversation. Below are comments from our website:

March 24, 2011—11:54 a.m.

In most cases, the difference between a bus and a streetcar can be boiled down to: How many passengers will it carry? How fast can it go? If service of equal quality can be provided with a bus, you should go with a bus. Too many smaller cities and low-traffic routes are looking to spend ... [money] on streetcars whose benefits simply do not justify the costs.

March 24, 2011—11:59 p.m.

There are too many generalizations about streetcars being superior to buses. Even among transit planners, there's a wide range of opinion. It all depends on where streetcars are being proposed. In a perfect world, with infinite money available for transit projects, streetcars would seem to be the pregeared mode. Others might argue that in a perfect world buses wouldn't have a negative stigma, and would therefore generate equal amounts of transit-oriented development as rail projects.

March 25, 2011—4:05 p.m.

I'm writing from Portland, Ore.'s Pearl District, where a couple-block casual walk to the streetcar stop through popular parks and plazas along generously shaded sidewalks adds quality to my life. The experience can't be described in terms of whether a bus would suffice for the modern low-floor, air-conditioned, or heated streetcar coming in the usually exact minutes displayed on the shelter monitor.

March 25, 2011—11:40 p.m.

In its 2011 ranking of cities, *The Economist* rated Melbourne, Australia, #2; Vienna #3; and Toronto #4 worldwide in livability. One thing those three have in common are well-maintained pre-WWII streetcars. Bus-based transit is practical, but maybe there's something about streetcars that goes beyond mere transportation and helps to make cities more livable?

Correction

In "Plugged In" in the April issue, the illustrations for Ryan Fetter and Jeff Guggenheim should be switched. Also, Guggenheim should have been referred to as a designer, not as an architect. We regret the errors.

→ Want to be part of the conversation? Go to architectmagazine.com. All letters and online comments may be edited for length, content, grammar, and style.

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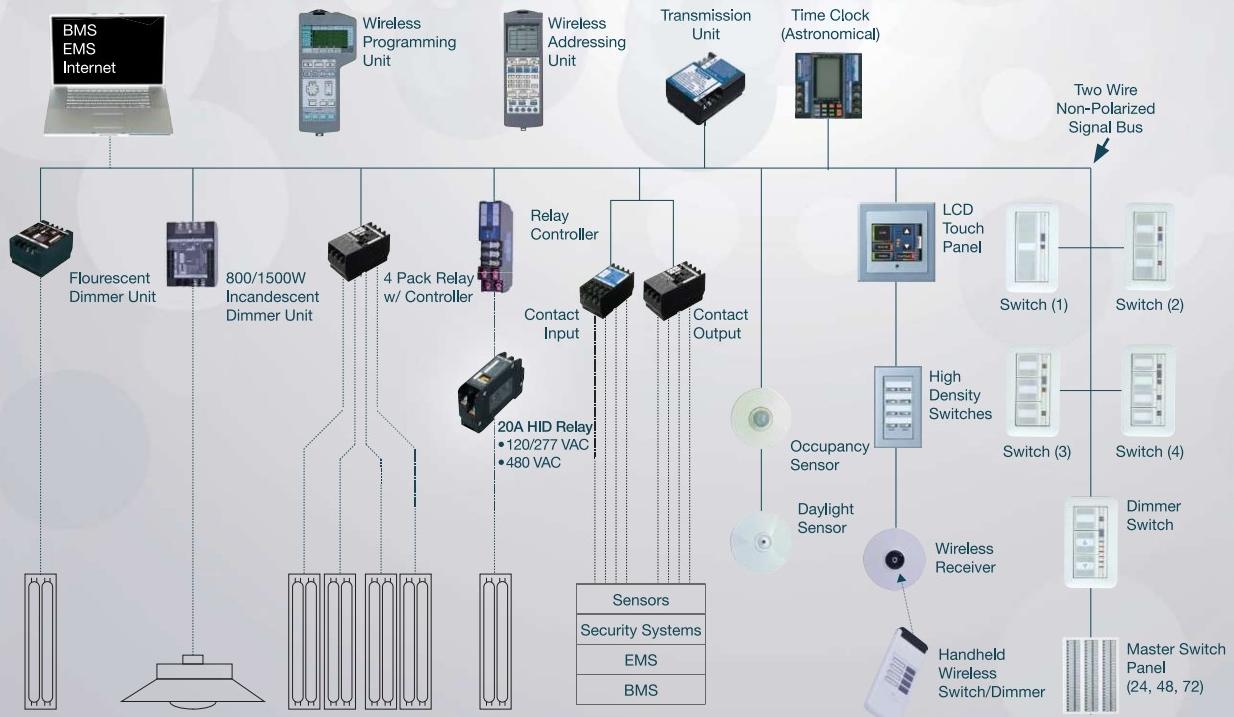
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Contributors



Jennifer Caterino

"Hotel Renovations" • page 54

Jennifer Caterino writes about business, policy, and legislation in the context of architecture. Before setting out as a freelancer, she served as editor-in-chief of *LA Architect* and *FORM* magazines. Most recently, she was managing editor of the *California Real Estate Journal*.

Caterino credits the recent recession and its profound effect on the architecture profession with her growing interest in real estate finance. Writing regular stories for ARCHITECT's Typology department has, she says, "challenged me to consider different building types through a lens that is part business and part design." In this issue, she writes about U.S. hotel renovations.

Caterino, who earned a bachelor's degree in journalism at New York University, lives in Los Angeles with her husband, cat, and two dogs.

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**THE BAY CITIZEN****San Fran OKs urban farming**

The San Francisco Board of Supervisors has approved changes to the zoning code that allow for farms of less than an acre throughout the city, and for the sale of produce grown on them.

**ARCHITECT****New CEO for NCARB**

Michael J. Armstrong of the International Code Council has been chosen as the new CEO of the National Council of Architectural Registration Boards. He succeeds Lenore Lucey, FAIA, in June.

**SILICON REPUBLIC (IRELAND)****Jones Lang LaSalle's iPhone app**

Commercial real estate giant Jones Lang LaSalle now has its own iPhone app, which offers the firm's latest research and can be customized by geographic areas of interest.

Souto de Moura Wins Pritzker



Portuguese architect Eduardo Souto de Moura is the 2011 recipient of the Pritzker Architecture Prize. "During the past three decades, Eduardo Souto de Moura has produced a body of work that is of our time but also carries echoes of architectural traditions," jury chair Peter Palumbo states. A one-time employee of Alvaro Siza, Portugal's other Pritzker laureate, Souto de Moura has recently completed the Casa das Histórias (above), a gallery in Lisbon for the work of artist Paula Rego.

HMC AND BEVERLY PRIOR ARCHITECTS ANNOUNCE MERGER

HMC ARCHITECTS, a 400-person, California-based firm with offices in Nevada and Arizona, is expanding through a merger with San Francisco's Beverly Prior Architects (BPA). "HMC has been planning for an office in San Francisco for the past few years," HMC president and CEO Randy Peterson, FAIA, says. The combined firms' San Francisco office will be known as HMC+Beverly Prior Architects.

The firms have overlapping experience in the education market, while BPA's civic- and justice-sector projects will complement HMC's work in the healthcare and institutional markets.

Beverly Prior, FAIA, will be principal in charge of the San Francisco office. "HMC has a strong design profile, and it's not a corporate culture," she says. "I can move and think with their people. There's a joie de vivre to them."

EDWARD KEEGAN, AIA

Editor's Note: HMC president/CEO Randy Peterson serves on ARCHITECT's editorial advisory committee.

34
square miles

AVERAGE LAND LOST IN COASTAL LOUISIANA PER YEAR, FROM 1950 TO 2000

SOURCE: U.S. GEOLOGICAL SURVEY/
NATIONAL WETLANDS RESEARCH CENTER

1,900
square miles

TOTAL LAND LOST IN COASTAL LOUISIANA FROM 1932 TO 2000

SOURCE: U.S. GEOLOGICAL SURVEY/
NATIONAL WETLANDS RESEARCH CENTER

3.03
feet

PROJECTED 100-YEAR SEA LEVEL RISE AT GRAND ISLE, LA., BASED ON MONTHLY MEAN SEA-LEVEL DATA FROM 1947 TO 2006

SOURCE: NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

ONE FOOTBALL FIELD EVERY 48 MINUTES

OVERALL RATE OF WETLAND LOSS

SOURCE: ENVIRONMENTAL DEFENSE FUND

MARCH 2011
ARCHITECTURE BILLINGS INDEX

50.5

↓ 54.7 commercial
↓ 48.0 institutional
↓ 49.8 mixed practice
↑ 50.8 multifamily residential

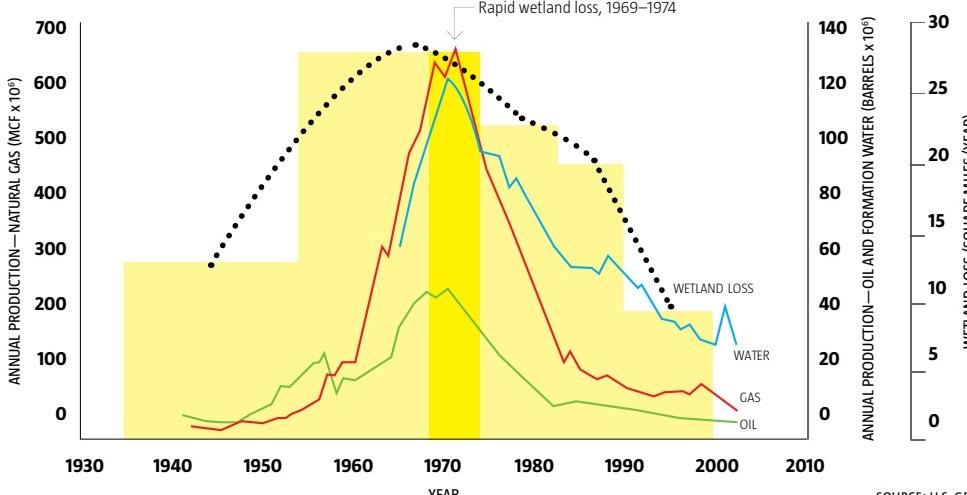
SOURCE: AIA

→NUMBERS

Louisiana Wetland Loss

TEXT BY AMANDA KOLSON HURLEY

ANNUAL FLUID PRODUCTION VS. RATE OF WETLAND LOSS



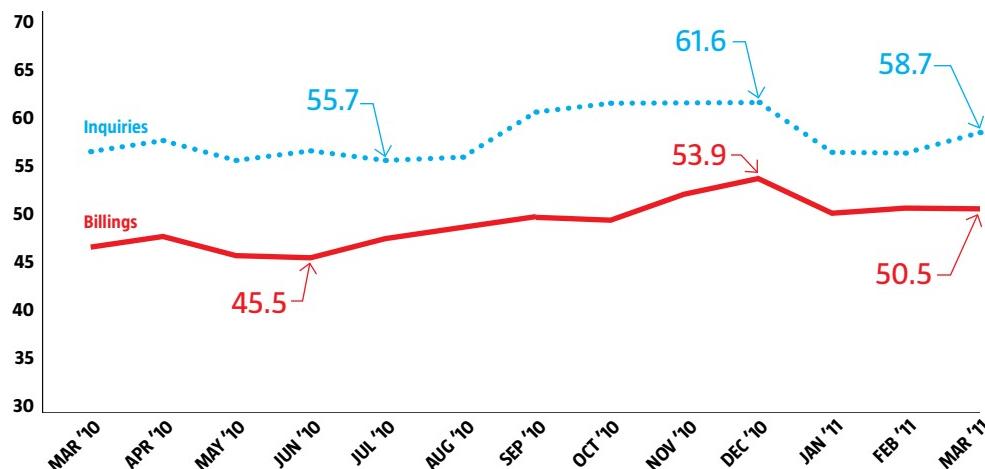
SOURCE: U.S. GEOLOGICAL SURVEY

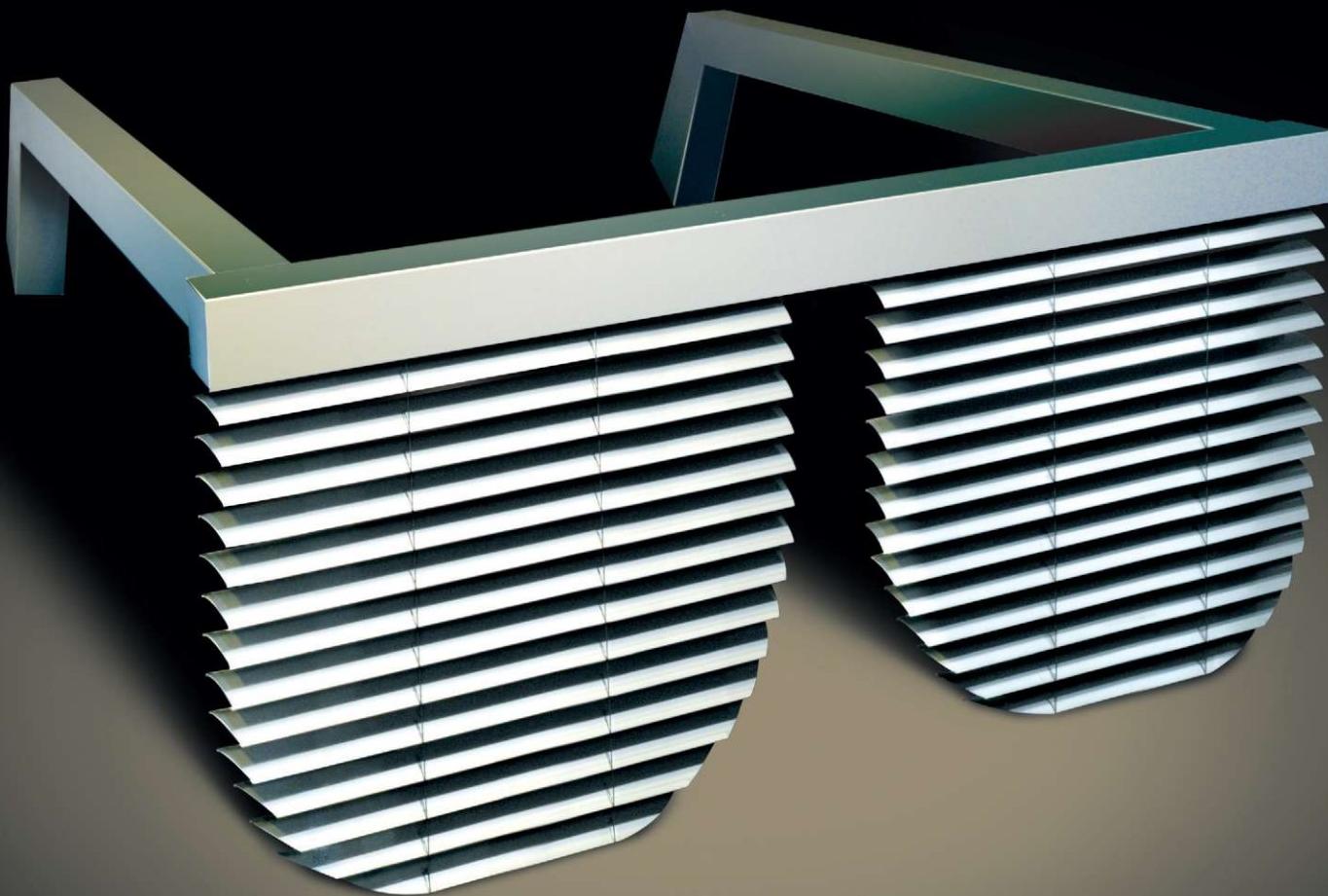
LOUISIANA IS ONE OF MANY COASTAL U.S. STATES that is bracing itself for the rising sea levels that global warming is predicted to bring. But the phenomenon is far from new, regionally: The National Oceanic and Atmospheric Administration estimates that Grand Isle, La., has already seen waters rise at a mean rate of 9.24 mm per year over the period 1947 to 2006.

In Louisiana's case, rising waters are compounded by a second problem—subsidence. According to a U.S. Geological Survey (USGS) study, "Widespread nearly simultaneous collapse of marshes across the Mississippi delta plain appears to be unprecedented and not repeated in the geological record of the past 1,000 years." The authors of the study date the highest rate of subsidence in the region to the late 1960s and 1970s, when production of oil and gas in south Louisiana was also at its highest. The study authors find that "rapid subsidence and associated wetland loss were largely induced by extraction of hydrocarbons and associated formation water," although the role of natural processes "cannot be discounted entirely."

The combination of rising water and sinking land has already had drastic effects on Louisiana's coastline: From 1932 to 2000, according to the USGS, 1,900 square miles of land (primarily marsh) were lost, an area roughly equivalent in size to the state of Delaware. The good, or at least better, news: Subsidence has slowed considerably since the late 1990s, improving the chances of long-term success for coastal restoration projects. □

BILLINGS AND INQUIRIES INDEXES





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On the Boards

TEXT BY KATIE GERFEN



W Retreat & Spa Kanai

RICHARD MEIER & PARTNERS ARCHITECTS

The newest in W Hotels' portfolio of tropical retreats, this sprawling 180-room beachfront hotel in Riviera Maya, Mexico, is expected to open in 2014. Located in a mangrove forest, the complex is designed with a protruding volume on the hotel's north side that houses a conference center; paths lead to freestanding pavilions housing a spa and other amenities. The south façade faces the beach, and the requirement of outdoor space for each guest room led the team to maximize natural ventilation. "What we're doing is trying to marry this incredible landscape with architecture that is striking," Dukho Yeon, AIA, associate partner-in-charge, says.

W Santa Fe

RICHARD MEIER & PARTNERS ARCHITECTS

Very different from its beachfront counterpart, the W Santa Fe is located in Liberty Plaza, one of Mexico City's first LEED-certified developments. The 132-room hotel, expected to open in 2013, occupies one tower in a three-tower mixed-use complex. It was while designing the W Santa Fe that Meier's office won the commission for Kanai. "Everyone thought it would be nice to have the same team working on the two very different projects for the same developer," Yeon says.

New technologies are revolutionizing the process and product of architecture. To celebrate advances in building technology, ARCHITECT magazine announces the fifth annual R+D Awards. The awards honor innovative materials and systems at every scale—from HVAC and structural systems to curtainwall and ceiling-panel assemblies to discrete building materials such as wood composites and textiles.

For more information e-mail: rdawards@architectmagazine.com

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The winning entries will appear in the August 2011 issue of ARCHITECT, both in print and online.

DEADLINE

Wednesday, May 18, 2011
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(postmark)

Monday, May 23, 2011
late submission deadline
(postmark; additional fee
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FEES

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Application forms and
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CATEGORIES

The awards will be judged in three categories, reflecting different stages of the research and development process:

- **Prototype**—Products, materials, and systems that are in the prototyping and testing phase
- **Production**—Products, materials, and systems that are currently available for use
- **Application**—Products, materials, and systems as used in a single architectural project or group of related architectural projects

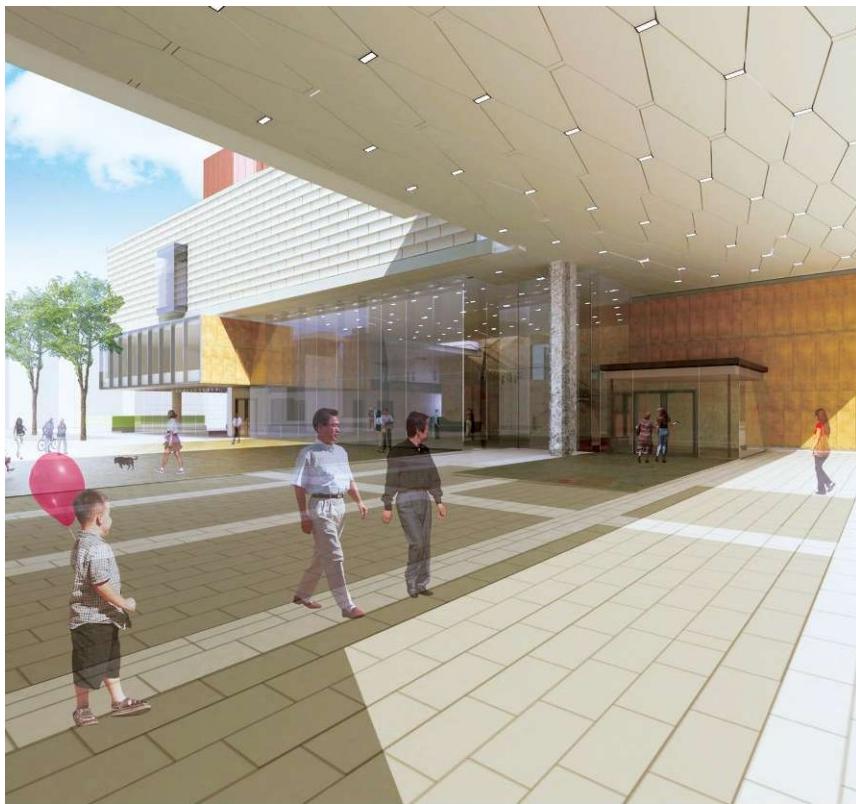
The jury will consider new materials, products, and systems as well as unconventional uses of existing materials, products, and systems. Entries will be judged for their potential or documented innovation in fabrication, assembly, installation, and performance. All entries will be judged according to their potential to advance the aesthetic, environmental, social, and technological value of architecture.

ARCHITECT

Chazen Museum of Art

MACHADO AND SILVETTI ASSOCIATES AND
CONTINUUM ARCHITECTS + PLANNERS

An 86,000-square-foot addition to Chazen Museum of Art at the University of Wisconsin-Madison will open this fall. Machado and Silvetti's freestanding gallery building connects across a bridge to the 1970 Harry Weese-designed original and riffs on the midcentury limestone and copper cladding. "We don't want to make two museums, we want to make one," design lead Rodolfo Machado, Intl. Assoc. AIA, says.



Clyfford Still Museum

ALLIED WORKS ARCHITECTURE

This Denver art museum, which opens this fall, is devoted to the work of the late abstract expressionist Clyfford Still. The architects designed a two-story, 28,500-square-foot concrete structure. They chose the material for "its weight—it has a mineral quality," says principal Brad Cloepfil, AIA. A porous concrete ceiling admits diffuse light into the galleries; trees screen the façades. A low entrance canopy leads to a 150-foot-long lobby with 10-foot ceilings. "It's a preparatory experience, stripping you down," Cloepfil explains.



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*Flotkoetter, Brent. "ZIP System® wall sheathing and energy performance" November 2008.

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Polk County National Guard Readiness Center

THA ARCHITECTURE AND LEASE KRUTCHER LEWIS

When preparing the RFP for a new Dallas, Ore., readiness center for the Oregon National Guard's 162nd Combat Engineering Company, Col. Christian F. Rees—trained as an architect himself—called not for a utilitarian structure, but for design excellence. The design/build team of THA Architecture and Lease Krutcher Lewis responded with a three-volume, 40,000-square-foot complex that includes an armory, classrooms, offices, and a large drill space, as well as public areas such as a central hall that the surrounding community can access when the Guard isn't using the facility. The architects specified local materials such as basalt-filled gabion walls and FSC-certified western red cedar to "not only tie the building to place, but to represent the work of the guard, specifically this engineering unit," says THA design principal David Keltner, AIA. The center is slated to open in August 2012.



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PHOTO: TIMOTHY HURLEY



AIAVOICES

RICHARD TYLER LOST EVERYTHING IN HURRICANE KATRINA, BUT BEGAN REBUILDING HIS LIFE WITH THE HELP OF A “PORCHDOG”

“It was devastating,” says Richard Tyler, 51, of Biloxi, Miss., a single father of three. “One day you walk out of your house, and the next day everything you own is gone.” But with help from Architecture for Humanity, which arranged for architects to donate designs for seven new houses in Biloxi, and the Arkansas architect Marlon Blackwell, AIA, he now has a brand-new home—one that’s the talk of the town.

We went to meet the architects and see models of the houses at the Salvation Army building. My son, who was about 13 or 14 at the time, was the one to pick the design. It was so modern-looking. It wasn’t just a conventional house—it had a futuristic look to it. It’s a stop-and-stare kind of house.

Marlon Blackwell and I talked a lot. I felt like he had my best interests at heart. He wanted this house done like it was planned. He called it “Porchdog,” I guess because I have a porch at the bottom and a porch in the back, two stories up. I love that porch.

The place I stayed in was half a block away from where they were building my house, and I passed by every day. Every time something

new happened, I got excited. They’d put up the kitchen cabinets or they’d put in the bathroom floor, and I could see myself in the house and say, “I’m gonna get me a big-screen TV” and “I’m gonna get a washer-dryer.” Just basic things that I hadn’t had for a while.

My family, my siblings are so happy because it’s a place where they can come back home. I’ve been in this spot virtually all my life. I can’t tell you how bad I wanted to get back home.

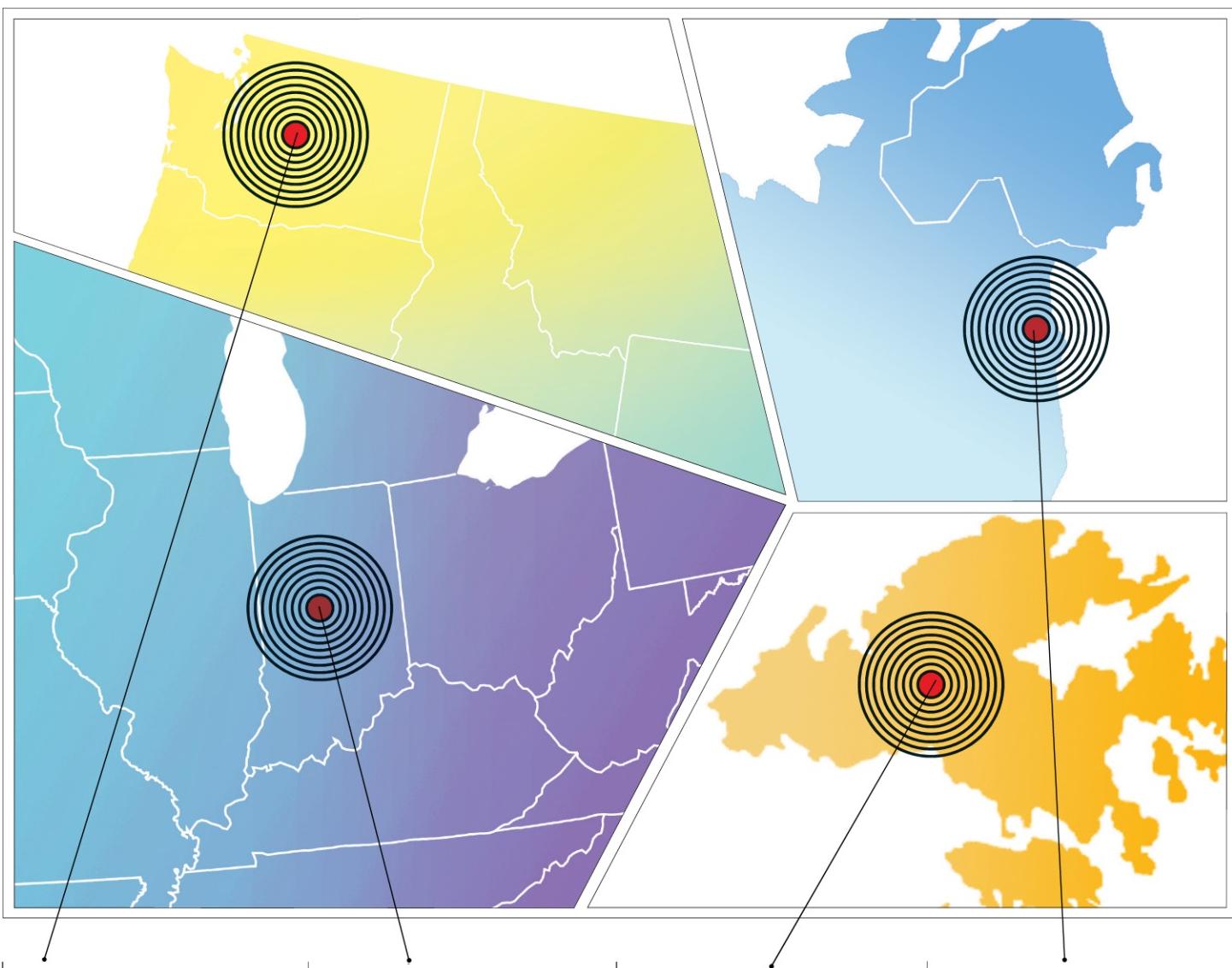
You know, I never thought about home design before, but now I look at houses all the time. It’s just a cool thing. And I’ve got this new appreciation for architects—you know what I’m saying? They’ve got a cool job.

Everybody knows my house. I have no trouble telling people where I stay because it’s easy to find. I just say, “Go down Holley Street and it’s the house like you’ve never seen before in your whole life.” As told to Joe Sugarman **AIA**

To see more images of Porchdog, visit aia.org.

AIANOW

ACROSS THE INSTITUTE



SEATTLE

WhichCraft in Seattle

AIA Seattle has set out to define the Pacific Northwest's contribution to architecture in WhichCraft?, a year-long series of events centered on design traditions and regional identity. Event organizers have framed the discussion by looking at local craft-ways and design theory (dubbed "localecture") as they relate to sustainable practices and questions about reviving Washington's economy.

↗ Learn more at aiaseattle.org.

COLUMBUS, IND.

Destination Architecture

From October 6–10, the Virginia Center for Architecture will conduct a five-day tour of Columbus, Ind., and works by Cesar Pelli, FAIA; I.M. Pei, FAIA; Edward Larrabee Barnes; Richard Meier, AIA; Thomas Beeby, FAIA; Gwathmey, Siegel & Associates; SOM; and Eieli Saarinen. Led by architecture writer Sally Brown, the tour's highlights include an insider's view of Eero Saarinen's J. Irwin Miller House (previously closed to the public). Side trips to Indianapolis and Cincinnati included.

↗ Learn more at virginiaarchitecture.org.

HONG KONG, CHINA

Hong Kong Explores Frank Gehry's Designs

Hong Kong's Marc & Chantal Design, with Swire Properties, has launched China's first Frank Gehry, FAIA, exhibition, which highlights the 82-year-old's career achievements as well as his progressive attitudes towards technology and computer-aided design. "Frank Gehry.Architect" coincides with the construction of the Santa Monica architect's first residential project in Asia—a Hong Kong luxury high-rise.

↗ Learn more at frankgehryarchitect.com.

DUBLIN, IRELAND

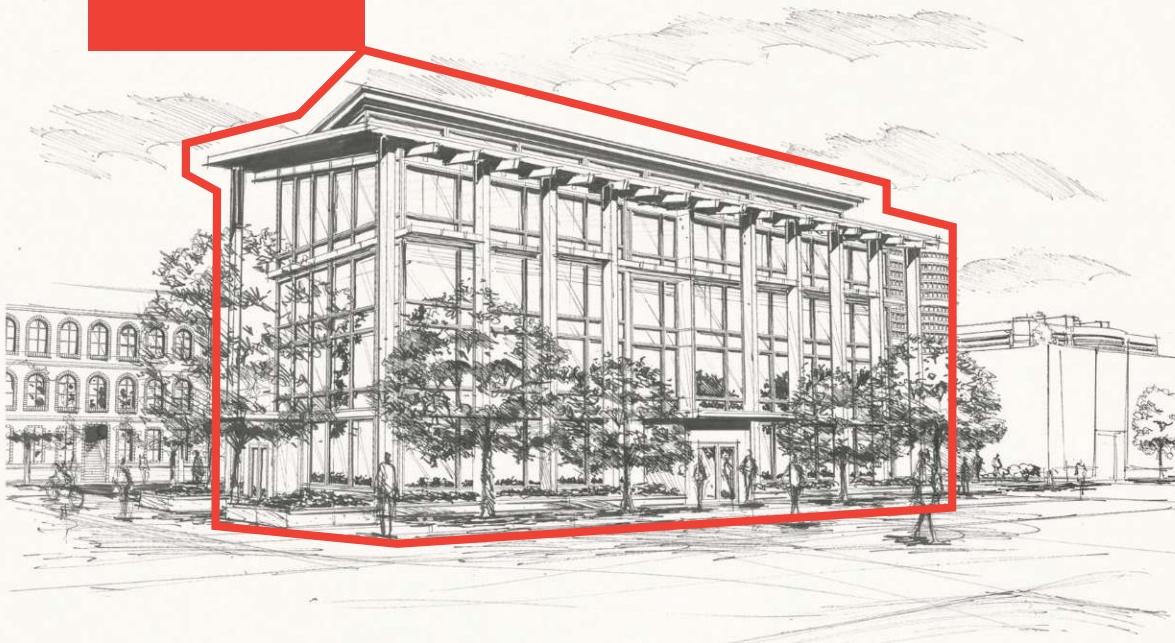
Slowing Down for Contextual Design

Dublin, Ireland's Slow Architecture Research Collective (SARC) will exhibit juried design proposals that address sustainability aboard a canal boat through June 2011. Now in its second year, the "Slow Architecture Exhibition" turns away from what organizers say is architecture's "visual commercial commodity" and towards place-making and an awareness of local ecologies. SARC hopes to engage local schoolchildren about the environmental and ethical components of design practice.

↗ Learn more at slowarchitecture.ie and see two more barge initiatives at www.arch.virginia.edu/learningbarge and shiftboston.org.

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The 2011 AIA Twenty-five Year Award

The John Hancock Tower, designed by I.M. Pei & Partners (now Pei Cobb Freed & Partners), received the 2011 AIA Twenty-five Year Award. Recognizing architectural design of enduring significance, this award is conferred on a project that has stood the test of time for 25 to 35 years as an embodiment of architectural excellence.

The tower is built on a small site in Boston's historic Copley Square. Designed by Henry Cobb, FAIA, the building had to be massive enough to accommodate the owner's requirements, yet mindful of its delicate and historic surroundings.

The solution was a smooth, reflective glass tower with no spandrel panels and minimal mullions. To minimize its intrusion on the adjacent landscape, the building is rhomboid in shape and placed diagonally on the site, so its shorter, slightest side faces the church and plaza.



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2012 Honor Awards

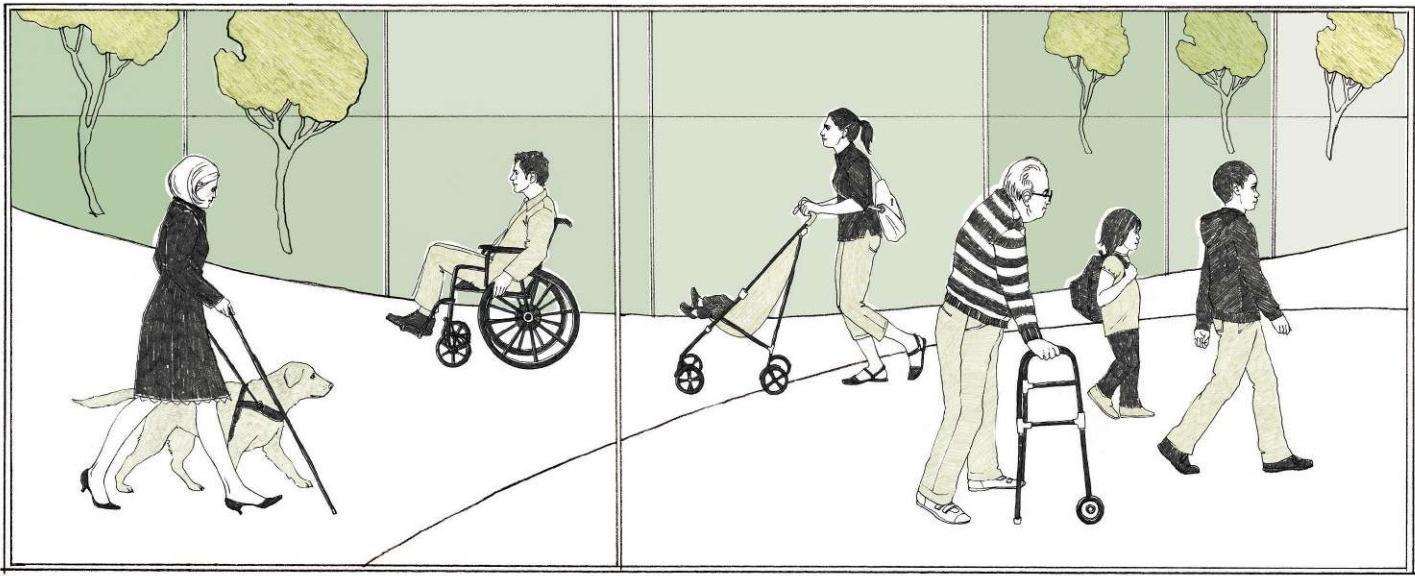


John Hancock Tower, Boston; 2011 AIA National Twenty-five Year Award recipient; architect: I.M. Pei & Partners; photo: Steve Rosenthal.

AIADESIGN

LIKE SUSTAINABILITY BEFORE IT, UNIVERSAL DESIGN IS ARCHITECTURE'S NEXT GREAT FRONTIER

ILLUSTRATION: LAUREN NASSIF



ASK AN ARCHITECT ABOUT UNIVERSAL DESIGN TODAY, AND YOU'LL hear about the ADA, wheelchair ramps, and grab bars. But a growing number of architects have expanded the definition beyond design for physical disabilities. They want to ensure that spaces work for people of all possible physical, sensory, and cognitive abilities. "This is the next movement towards sustainability," says Jim Warner, FAIA, 2011 chair of the AIA's Design for Aging Knowledge Community.

There are obvious and not-so-obvious reasons that the profile of universal design has risen. As baby boomers age, they will create an unprecedented level of demand for aging-in-place design features. With depressed home prices, boomers can no longer assume they'll turn a profit on their investment, which might have allowed them to move to houses that better fit their needs as they age. Last year, the Brookings Institution reported that interstate moves between March 2009 and March 2010 were at their lowest rate since 1948.

But aging-in-place is only one element of universal design. Valerie Fletcher, executive director of the Institute for Human Centered Design in Boston, says that architects have to start paying attention to brain function as much as physical ability. In the past 25 years, she says, the percentage of children in special education classes with brain-based limitations has rocketed to 86 percent. "How do we create classrooms, community centers, and homes where the reality of brains that work differently has been anticipated?"

Universal design is largely about being realistic. Anyone who is pushing a stroller, pregnant, or particularly tall or short can benefit from universal design. In fact, the need for universal design is just that—universal.

We all fall short of the "able-bodied" ideal. Our abilities vary, and we can all expect them to decline over time, says Stefani Danes, AIA, of Perkins Eastman in Pittsburgh. Last fall, Danes and a group of AIA members visited the universal design research facilities of the plumbing products manufacturer TOTO in Japan. Both universal design (with ADA regulations) and sustainability (with the International Green Construction Code) are going through a code-based development phase, but Danes says that true universal design doesn't come from following minimum standards. "It challenges

us to get away from singular answers—to much richer arrays of possibilities that are deliberately and thoughtfully designed."

The Forbush School in suburban Baltimore employs these progressive approaches to universal design. Designed by Cho Benn Holback+Associates and completed in 2008, it's a school for 5- to 21-year-olds with severe autism. Integrated early during initial programming exercises, the school's universal design features are subtle and useful for everyone that uses the facility, not just children.

Autistic children can be very sensitive and reactive to their environment and are more likely to have cognitive limitations. The school features very clear and rational circulation patterns, in which soft colors indicate various zones and programs. Specific therapy offices are integrated into each classroom wing, and hallways are wider than usual because autistic children can be hypersensitive to personal-space boundaries. The school is also designed for durability, but without a threatening aura of institutionalization. Its architects selected a reinforced gypsum panel that looks more like typical drywall, instead of more institutional-looking concrete masonry blocks.

Cho Benn Holback project architect Rima Namek, AIA, turned what seemed to be design constraints into strengths. Students won't be the only ones to appreciate the building's noninstitutional air and straightforward design. New visitors to the building will take note of the clear layout, as well.

Namek says that she witnessed more than one student meltdown while studying the school, but overall Forbush is a happy place, free of institutional stigma. "We were trying to customize the space so that it addressed a population's special needs, but we were trying to create a place where ... [the students] could feel normal," she says.

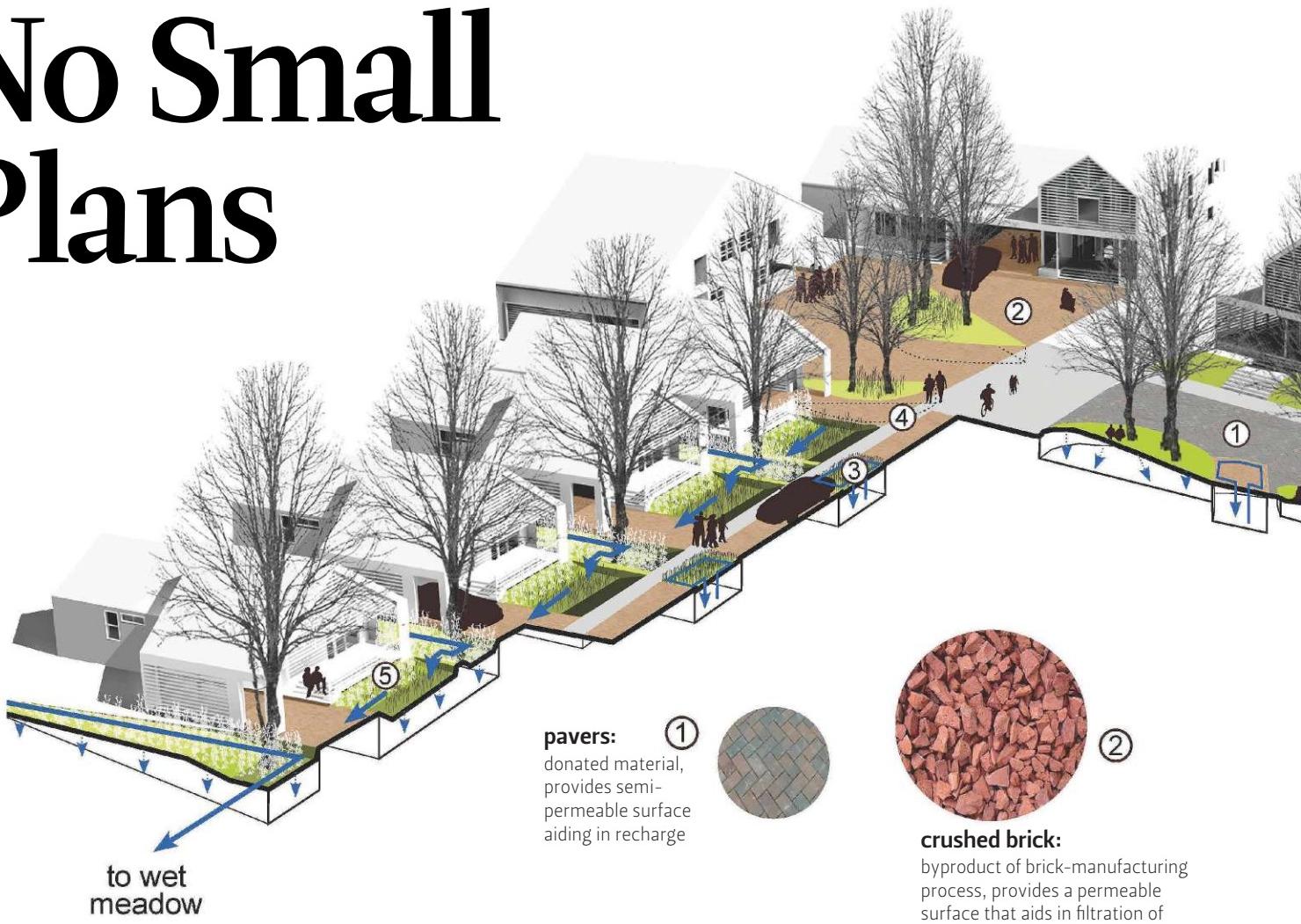
The feeling of normalcy is the goal for universal design users and the movement itself, Namek says, while the rest of the built environment tells these users that they're anything but normal. As for sustainability, the ultimate measure of success is when universal design is indistinguishable from good design. **AIA**

Written by Zach Mortice.

Make No Small Plans

Grounding architecture within a larger building ecology.

NATE BERG



UACDC and Habitat for Humanity's redevelopment project for 17 homes centers on a natural watershed process to clean and recycle water in Rogers, Ark. While water is a regional concern, its effective treatment begins at the local level.





⑤ bioswale:

facultative vegetation aids in phytoremediation and pollutant removal—"right plant, right place"

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permeable surface with facultative vegetation, provides sediment control and recharge capacity

concrete and asphalt:

concrete used at sidewalks, asphalt used at roads; asphalt is more pervious than concrete and is used where current codes will allow

Up to 47 percent of surface pollutants can be removed in the first 15 minutes of a storm event, including pesticides, fertilizers, biologically derived materials, and litter. ... Pervious surfaces that capture stormwater runoff increase opportunities for pollutant removal and attenuation of flow velocity.

REGIONAL ISSUES SUCH AS STORMWATER TREATMENT AND ENERGY

production have become major elements of the design of architectural projects, even at a very small scale. As demand for natural resources rises and the impact of pollution spreads, taking these issues into consideration is likely to become a more important part of urban planning and architecture. This year's national AIA convention recognizes the shift with its theme "Regional Design Revolution: Ecology Matters."

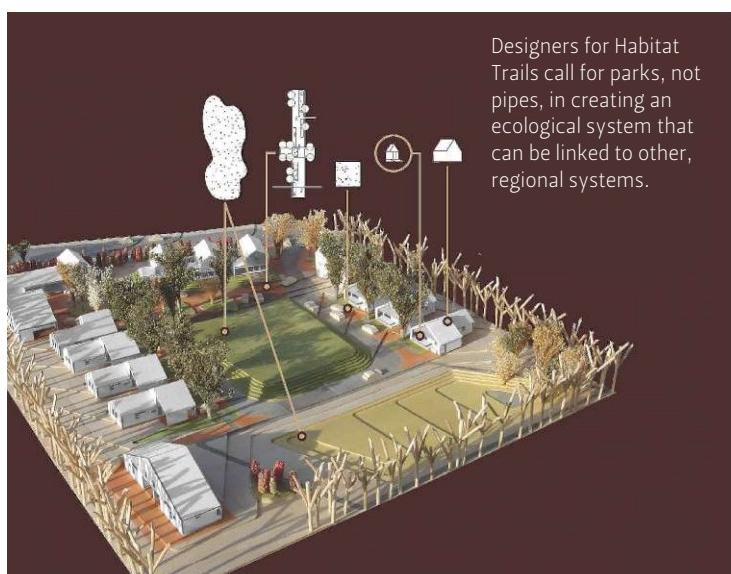
But many argue that the long-term thinking of regionalism is still a burgeoning concept.

"The time frame that our culture works on is far too short when we look at how long cities actually last," says Tom Christoffel, AICP, editor of *Regional Community Development News*, a bimonthly newsletter tracking regionalism in planning and architecture.

A building is not just a building. It's part of the ecology of the built environment—a vast interconnected web of components and elements as varied as transportation, water, jobs, and energy. These are the concerns faced by the regions within which buildings stand. Increasingly, macro long-term concerns are weaving their way into the design processes of architects and planners.

A number of projects nationwide epitomize detailed consideration of regional issues, from energy production to transportation infrastructure to affordable housing. Water is often seen as the most important regional concern. With watersheds and aquifers that can span states and serve tens of millions of people, it is increasingly important for projects to use both an appropriate amount of water and reduce reliance on aging water infrastructure and centralized water-treatment facilities.

This was the main goal for Habitat Trails, a 17-unit neighborhood development in Rogers, Ark., designed as low-income housing by the University of Arkansas Community Design Center (UACDC). Low Impact Development (LID), an emerging set of standards for utilizing natural watershed processes to clean and recycle water, guided the Habitat for Humanity Project. The site will essentially work as a sponge, absorbing all rainwater and runoff without expensive and inefficient pipes, catchbasins, and curbs and gutters, according to Stephen Luoni, Assoc. AIA, director of the UACDC.



Designers for Habitat Trails call for parks, not pipes, in creating an ecological system that can be linked to other, regional systems.

Absorbency served as the dominant design parameter and the first step. "Once we had determined an ecological fabric that can function within a predevelopment hydrological model, then we went in and proposed the roads and houses," says Luoni. "Water-management infrastructure is designed not to exceed the carrying capacity of the

Projects of regional scale like these do exist, and their numbers seem to be growing. But for many veterans in the field, those numbers are still too low.

site's landscape to biologically treat stormwater runoff. It's starting in the exact opposite way that conventional developers start."

That approach may catch on. Of the six housing units already built, Luoni reports that the water absorption and treatment capacity of the site have already exceeded expectations.

The project has also won numerous awards, including the 2008 AIA Honor Award for Regional and Urban Design.

Another inventive regional design is Lopez Common Ground by the Seattle-based architecture, planning, and landscape architecture firm Mithun. Located on Lopez Island in the San Juan Islands north of Seattle, the project's 11 homes on seven acres are designed to be both highly water- and energy-efficient. Photovoltaic solar-panel and solar-thermal systems provide energy and water heating for the project, which approaches net-zero-energy consumption, according

to Mithun principal Mark Shapiro, AIA. Catchment systems in this rainy climate provide all the water for the neighborhood's toilet flushing, clothes washing, and irrigation.

But water and energy aren't the only concerns. Once a primarily working-class community, this small island about 65 miles from Seattle has steadily transformed into a weekend retreat and vacation spot for mainlanders, pricing island service workers out of their homes. The response from Mithun and its client, the Lopez Island Community Land Trust, was to build affordable housing.

This is just one Mithun project that takes a regional approach to its design. Shapiro says that responding to the natural environment has become an integral part of the firm's design process.

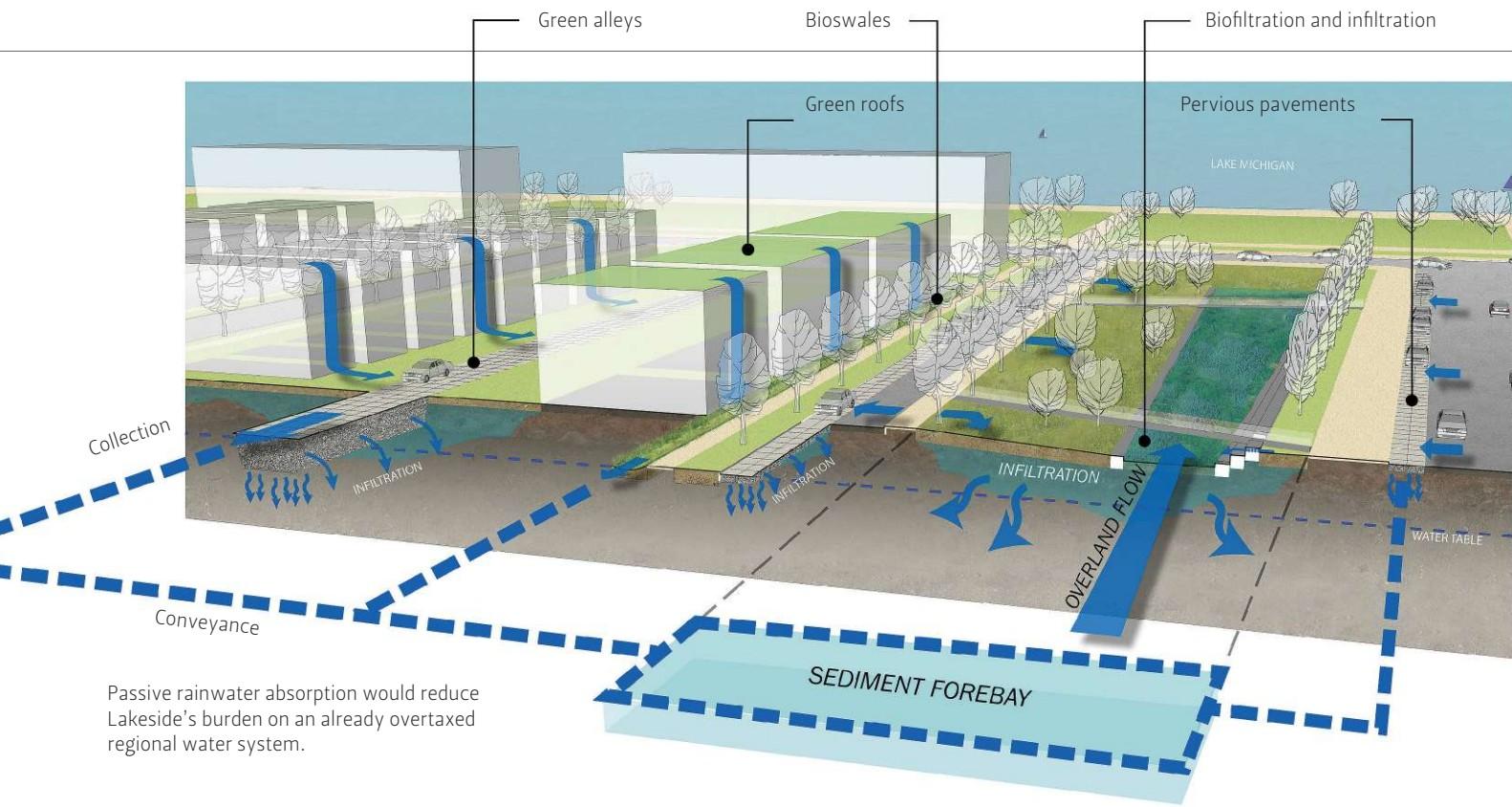
"Once one starts to look at things from that point of view, the idea of scale jumping becomes really important," Shapiro says. "It's about how any individual project, no matter how small it is, can really contribute to a larger strategy."

Neighborhood planning takes on even more importance as the scale increases. On the south side of Chicago, the location of a former steel-manufacturing plant that's been unused for years is the site of some innovative, large-scale, and regionally sensitive planning. The Lakeside master plan by Sasaki Associates and SOM would replace the disused 460-acre plant with a 13,500-person medium-density, mixed-use community. Located directly on the shore of Lake Michigan, this project proposal is notable for using and integrating former industrial land into the urban fabric. The master plan also includes 100 acres of lakefront park space, part of which fills in an empty segment of a regional waterfront park system.

Again, water is the crucial consideration. Because Chicago has a shared hard infrastructure for its stormwater and sewage, major

Sasaki Associates and SOM's Lakeside master plan for Chicago integrates former industrial land into a mixed-use, medium-density community model.





rain events cause major pollution problems in the lake. The master plan accounts for this potentially hazardous regional condition, and rainwater passively absorbs into about 90 percent of the project's footprint. Reducing the stress on an already overstressed urban water infrastructure system was a priority, according to Sasaki president Dennis Pieprz.

"And we did it in a way that made it ecologically visible," says Pieprz. "It was expressed as part of the aesthetic of the public realm, so you could see how the cleansing and the design of the wetlands were operating."

The master plan was recently approved by the Chicago City Council, and major work on the 25-year vision is expected to begin in 2013.

Projects of regional scale like these do exist, and their numbers seem to be growing. But for many veterans in the field, those numbers are still too low. Daniel E. Williams, FAIA, has long been a practitioner of ecologically based planning and design that addresses regional issues, including climate change, sea-level rising, and post-disaster planning. His 2007 book, *Sustainable Design: Ecology, Architecture and Planning*, calls for an expanded definition of sustainability in design that considers not only a region's environment, but also its economy and social structure over a time scale of hundreds of years.

"What we all need to be doing is learning more of the science—in particular on climate change, ecology, and hydrology—and finding out how regional systems actually contribute to the health of the local economy and community," he says.

Once architects and planners develop this understanding, more projects will begin to actively recognize and respond to the ecology of the built environment. That shift has begun. **AIA**

AIA PERSPECTIVE

THE VIEW FROM 25,000 FEET



PHOTO: WILLIAM STEWART

IF YOU'RE FLYING TO THE 2011 AIA NATIONAL CONVENTION, choose a window seat. As you approach New Orleans, look out at the land below. From the air, the landscape resembles the circulatory system of a living creature.

Of course that's the point: It is a living system—a dynamic ebb and flow of nutrients and life. If you can for a moment edit out all traces of human intervention, the equilibrium struck among the competing forces of water, land, and air in a system that stretches to the horizon is astonishing.

So is the beauty of a landscape laid down layer by layer since the last ice age. Even this high up, you can sense the pulse of life below.

The moment passes. Your eye now catches the straight lines of canals cut through the tissue of fragile wetlands; the refineries that choke the banks of the river; the gray sprawl of uncontrolled suburban development that covers what was once fertile land. If you had access to time-lapse photography, you'd see the Gulf of Mexico eating away at the grassy marshes that for centuries absorbed the storms that hurl themselves at these shores. It's a system under stress.

Here in the Mississippi Delta, where a sustainable balance of the region's abundance of natural resources is so delicate, the footprint of piecemeal exploitation is especially heavy. Here the lack of a comprehensive vision of how the cities, villages, woodlands, farms, and open land can reinforce rather than compete with one another has locked the region in a zero-sum game in which the gain of one constituency is purchased at the cost of another.

If the story is familiar and the consequences of exhausting the abundance we inherited predictable, why is it so difficult to change course? The evidence of our own eyes—whether it's gridlock or the increasing occurrence of 100-year floods—should be enough to throw down a penalty flag on our play. Could our inability as a society to take meaningful collective action be less a failure of will or leadership than the way we talk about the threat?

One approach that does not work is scare tactics. Whether it's scenes from the aftermath of Katrina or recent footage of the earthquake

and tsunami that devastated communities in Japan, scaring people into doing the right thing seldom leads to positive long-term change, especially if a change in direction appears to entail sacrifice.

What's called for is a vision—a way of looking at possibilities that energizes the public and invites its enthusiastic participation. Change is not the offspring of despair; the necessary precondition of meaningful change is hope.

What inspires me as an architect, what gets me out of bed every morning, is the belief that we are at one of those rare tipping points in history where the core competency of our profession—design—can make a difference in how our great-grandchildren tell their children the story of the 21st century. Where others would have us fear for our children, architects instead offer hope.

Like passengers on a plane, design lifts us and those we serve beyond what has been a zero-sum game to a place where we can see the interconnectedness of people and place. Rivers are not patches of moving water; they are highways that sustain and carry life. Cities are not mere aggregations of buildings; they are the creative nodes of a region that make efficient use of energy and celebrate diversity.

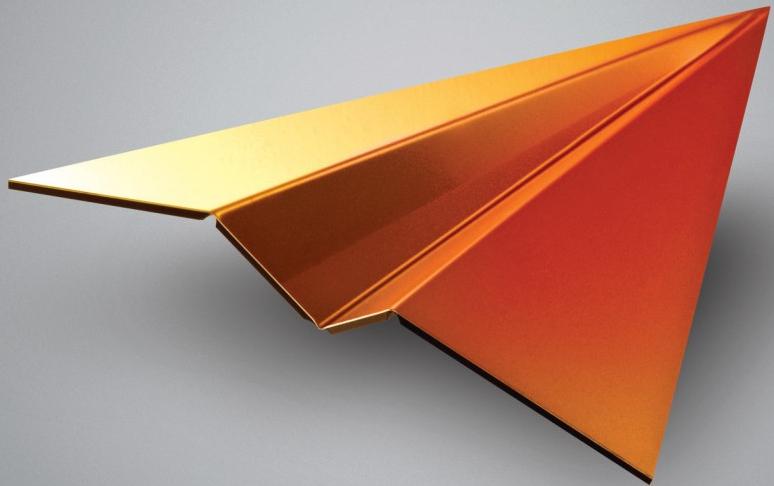
Towns are not shapeless developments that compete for tax dollars, but vibrant compact communities that support and in turn are supported by the city. Open spaces are not merely land waiting to be developed, but the lungs and breadbasket of a region. If there is any one lesson that can and must be learned from natural disasters, it's how we are connected to the land and the land is connected to us.

The hope inspired by design offers a comprehensive vision for a future not of more or less, but of better. Exploring the shape of such a vision is the agenda of the 2011 AIA National Convention, "Regional Design Revolution: Ecology Matters." The goal? For architects to take the lessons of New Orleans back home to be leaders of their own design revolution. 

 Join our conversation at go.hw.net/aiaperspective.

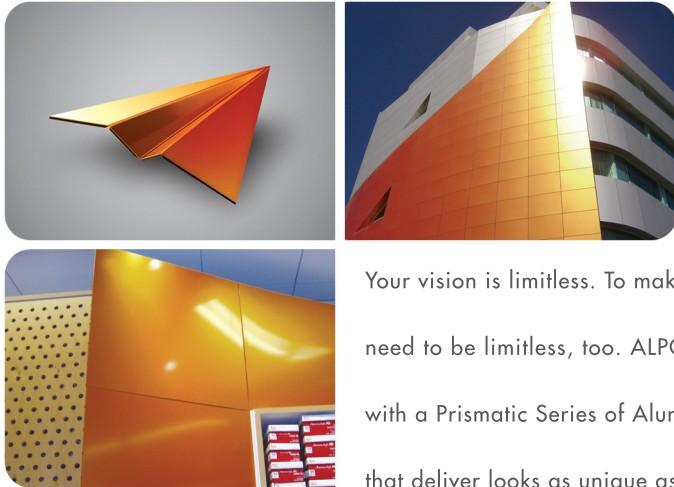
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BUSINESS



INTERVIEW BY ERNEST BECK
PHOTO BY JAMEY STILLINGS

→BEST PRACTICES

Shoot the Moon

It takes a moment to snap a picture, but days to shoot a building. **Nick Merrick**, an architectural photographer with Hedrich Blessing, explains how to approach buildings—and their designers.

FOR THE PAST 30 YEARS, architectural photographer Nick Merrick has logged thousands of miles capturing vivid images of houses, orchestra halls, museums, airports, corporate headquarters, and other types of structures. Whether it's a small residential structure or the world's tallest building—a recent project took him to Dubai, United Arab Emirates, to shoot the half-mile-high Burj Khalifa—Merrick works to create photographs that have an elemental relationship to a building. A senior partner in the renowned Chicago architectural photography firm Hedrich Blessing Photographers, the

57-year-old Merrick spoke to ARCHITECT for the second in a two-part series about architectural photography. He offers a few tips for aspiring architectural photographers—and insight into how photographers work best—for the clients who hire them.

Get acquainted.

First things first: If you're a photographer, talk to the architects. You want the designers to tell you what the



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project is about, what was going through their minds when they designed it, and what their needs are for the pictures. Merrick asks architects to tell him about their earlier understanding of the building and how they solved design problems. He asks specifically for renderings and drawings: Like those studies, an architectural photograph will be used for marketing, publishing, competitions, and awards.

Take a stroll.

It's best to walk around and through the building, to get a sense of it, to see where the sun hits and shadows play. "This helps to open myself to the building on an emotional and intellectual level," Merrick explains. "There are visual decisions that come when you look at the building and respond." Sometimes an architect or member of the design team will come along on a photo shoot, but not always. "One client loves to accompany me before anyone moves in, because he says it's the only time he feels he really owns the space."

Compose the shot.

Part of the assignment is solving technical problems such as finding the best vantage point to show mass and shape or the way to depict spatial depth and clarity. You have to see how light interacts with the project. As a rule, the bigger the building, the harder it is to find the right view. "For the Burj, the challenge was how to express a building of that size," Merrick says. "We included 40-story skyscrapers, shooting from the 14th floor of a hotel."

"USE DIGITAL TOOLS WITH A VERY LIGHT TOUCH, SO THE PHOTOGRAPHS DO NOT HAVE A DIGITALLY RENDERED LOOK."

Provide a point of view.

A project's environment may give cues about whether to go with a natural or staged look. If it's a university campus with lots of students walking around, shoot first for a natural look. For interior shots that are not heavily peopled, the shot can be staged. "And if it is staged, let's really do it," Merrick says. "Let's gather people together and let them interact." You may need to bring in a crowd, and they're more likely to come from the architect's office than from a modeling agency. "They become part of the composition."

Tweak a bit, when needed.

"Digital photography means we can change and clean things up, but keep manipulation to a bare minimum," Merrick says. You can take a person who looks good in one shot and put him or her in the final shot. You can merge and mingle people, change color and contrast, and delete what doesn't fit—such as an exit sign in an interior shot or a lamppost. "But use digital tools with a very light touch, so the photographs do not have a digitally rendered look."

Charge by the day.

"We charge by the hour when we are actually making photographs," says Merrick. For every three days of photography, there are three days of related tasks in the office associated with the shoot (for which he charges by the day). "In an eight-hour day, we can do four interior photographs and eight exterior photographs." Some assignments take longer: The Burj shoot in Dubai, for example, lasted nine days, about twice the time it takes for most shoots. The time spent processing work in the studio should be included in the fee.

Make a pitch for history.

Architectural photography is invaluable. A photograph is the only representation of a building that most people will ever actually see. "The photograph is ultimately where the work lives," Merrick says. "There are many buildings out there that we only know from the classic photographs of them." □

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→TYPOLOGY

Hotel Renovations

THE RECESSION FORCED SOME HOTEL OWNERS TO PUT OFF RENOVATING. NOW, AS CONDITIONS IMPROVE, THEY'RE TRYING TO DO THE MOST THEY CAN WITH THE CAPITAL THEY'VE GOT.

St. Regis Princeville Resort • Kauai, Hawaii

• WATG
WATG transformed this 23-acre, 303-room resort from a property outfitted in a somewhat heavy, European style to one with a more Hawaiian and residential feel. The resort reopened in late 2009 as the first St. Regis property in Hawaii. Today, major hotel renovations are less common in the U.S. than budget-conscious upgrades.

PATIENCE IS NOT an easy virtue to come by while waiting for the domestic hotel market to fully recover. Architects who thrived during the heady years leading up to the recent recession can't help but ask: Are we there yet? No, experts say, but we're close.

The recovery, which is already under way, is characterized by increased demand and a rebound in revenue per available room (RevPAR). In 2010, RevPAR jumped by 5.5 percent, according to the March–May 2011 Horizons Report from Colliers PKF Hospitality Research. The same report forecasts that U.S. hotels should achieve a 7.1 percent increase in RevPAR and lodging accommodation demand should increase by 4 percent in 2011.

The improvement in fundamentals is undeniable, but owners and operators were hit hard in 2009, when the hospitality industry's average daily rate (ADR) dipped 8.5 percent and RevPAR plunged 16.6 percent, according to PKF. David Sussman, senior vice president, hotel development and design at Kimpton Hotels & Restaurants, says these factors had some owners asking themselves if they should pay their mortgage or renovate.

"Last year, people really slowed down and stopped renovations," he says, adding that the sense of uneasiness has begun to quell, and owners are again spending on design services.

Refresh or Reposition?

At the end of January, Smith Travel Research (STR) reported a total of 352 major hotel renovations under way in the U.S. An untold number of smaller projects—a refresh of a lobby, for example—are also ongoing. What these projects entail varies greatly based on each owner's specific objectives.

"When it comes to repositioning, it's likely a more radical intervention, a more comprehensive look at the project," says Jonathan Wyman, director of development, North America, for WATG in the firm's Irvine, Calif., office. "A renovation could be updating guest rooms. There's no set benchmark."

What is consistent is that hotel owners are constantly considering a host of capital expenditure (CapEx) projects. Some of these are dictated by a material's life



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Intersect: A Fairmont Media Lounge •

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This 2,400-square-foot lounge in the Fairmont San Francisco occupies space once used for hotel offices. It has gaming stations, an interactive media table, and a 40-person-capacity screening room with an LCD projector.

MATTHEW MILLMAN PHOTOGRAPHY



span, while others are part of an operating company's brand standards—any number of requirements that owners agree to meet to retain a brand's "flag."

In CapEx 2007, a study of capital expenditures in the hotel industry focusing on the years 2000–05, the International Society of Hotel Consultants (ISHC) points out that though owners don't necessarily stick to a set timetable for renovations, there is a pattern of periodic spikes of capital spending. The study attributes this spending, in part, to the brand-mandated capital-improvement programs.

Sussman explains that hotel owners set aside a certain percentage of its revenue each year for capital improvements. "The question," he says, "is when do you spend the money?"

Once a property is up and running, it's only a matter of time before an owner has to evaluate soft goods—commonly defined as everything in the room that's not a casegood—which Sussman says have an average life span of seven years. Hard pieces, or case goods, can easily last 15 years. "Furniture is generally changed more because of the look of the hotel. Soft goods have a useful life," he says.

The life span of any element of a hotel generally depends on the hotel's particular brand and its star, says Donald Harrier, an associate principal at HKS Hill Glazier Studio in Palo Alto, Calif. Harrier recalls a project that his firm did for Montage Hotels & Resorts in Laguna Beach, Calif., in 2003. In 2007, the hotel underwent a renovation that involved adding suites and redoing furniture and fixtures.

"Their clientele demands that level of luxury," Harrier says.

Prioritizing Projects

Joe Erickson, principal in charge of San Francisco-based Cooper Riley, specializing in hospitality owner representation, says owners are focused on doing the most with what they've got, capital-wise. Right now, he says, the emphasis is being placed on the "experience of arrival," though that can mean as little as new exterior paint or lighting or refreshing a hotel lobby with new carpet and freshly reupholstered furniture. "Eventually, owners are going to renovate," he says. "They are buying time, doing the minimum with cash on hand to see the most impact."

According to CapEx 2007, even the most sophisticated asset managers have difficulty in accurately predicting the time and cost of a hotel's major capital expenditures. Though data now exists to evaluate the "typical" capital needs of a property over its life cycle, the "human factor" will always complicate the task, the study says.

Kirby Payne, co-president of HVS Hotel Management in Newport, R.I., says that there are lots of different kinds of owners, with different motivations. At the end of the day, he says, someone is doing an economic analysis.

"Say you don't have pressure on you [from a brand], you have to ask if this is accretive to revenues, to the bottom line, or is it just going to keep me from losing money? You might have a remodel that is purely

9.6

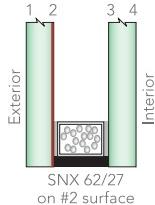
Percentage forecasted change in revenue per available room, 2010 to 2011, for luxury hotel chains. (RevPAR increases are expected to be lower for other chain scales.)

SOURCE: COLLIER PKF HOSPITALITY RESEARCH, MARCH–MAY 2011 HOTEL HORIZONS REPORT.

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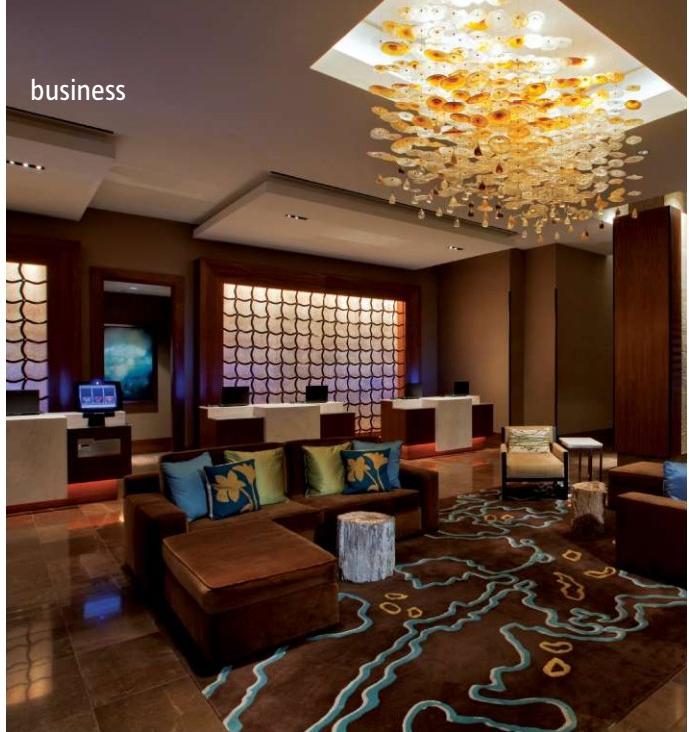
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This spring, the Hyatt Regency completed the first phase of a \$30 million renovation, which gave the hotel a new porte-cochère and revamped the lobby to achieve what the hotel's general manager calls an "urban lodge" ambiance. The second phase of the renovation, under way now, will focus on the meeting rooms and ballroom.

MARK KNIGHT PHOTOGRAPHY



defensive." He cites the removal of packaged terminal air conditioner (PTAC) units in rooms, which a hotel might elect to replace because the noise of the units is hurting business.

Michael Booth, a founding principal of San Francisco-based design firm BAMO, says that guest expectations are also high when it comes to bathrooms. "Today's [luxury] guests expect four fixtures, including a freestanding shower and a tub," Booth says. Most older luxury properties were built with just three fixtures in smaller facilities, according to Booth.

Parker-Torres Design, a Wayland, Mass.-based interior design and interior architectural firm, is negotiating bathroom renovations at the Fairmont Copley Plaza in Boston. Wanting to avoid wall demolition, Barbara Parker, a principal of the firm, says that the firm is studying ways to convert an existing closet into a luxurious shower.

Because hotels operate a number of income streams in addition to the guest rooms, renovations also focus on growing and improving meeting facilities to capture more group business, updating bar and restaurant spaces, and sometimes adding spa services.

Other properties have found new uses for underutilized space. In 2009, the Fairmont San Francisco turned to Freebairn-Smith & Crane, a San Francisco-based planning, urban design, and architecture firm, to design "Intersect: A Fairmont Media Lounge," a 2,400-square-foot facility featuring contemporary furniture, a Bang & Olufsen music system, gaming systems, a Microsoft Surface interactive table and other state-of-the-art technology that can be used for corporate events and social gatherings.

According to Freebairn-Smith & Crane principal Janet Crane, the lounge occupies space previously used for hotel offices. "This is an unusual emphasis for a hotel of that kind," Crane says. "They are trying to use contemporary media as a social device to encourage





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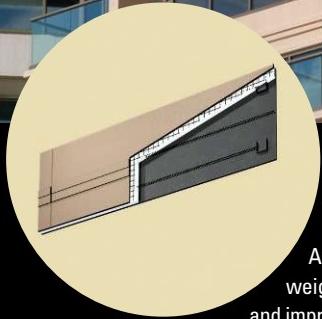
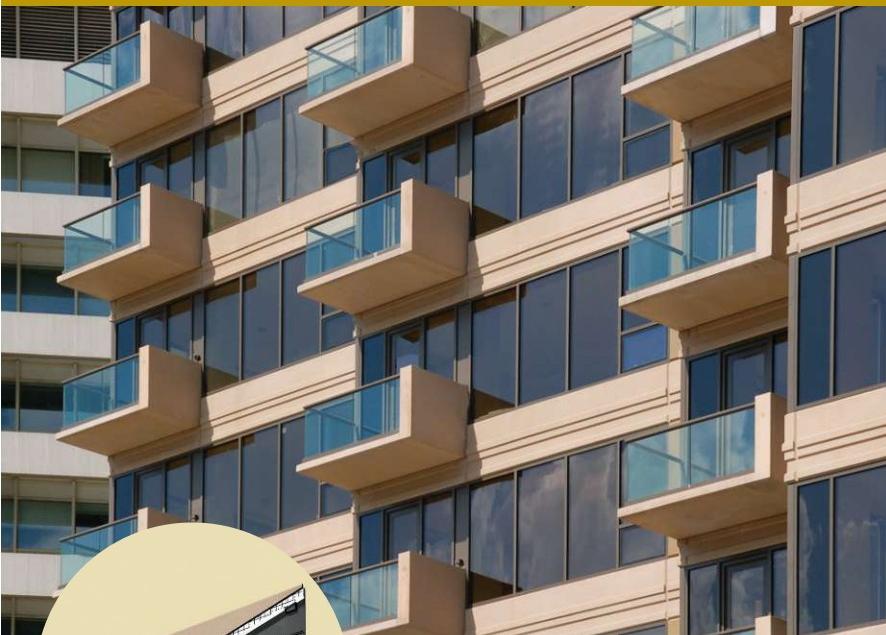
guests of all ages and profiles to have fun together in an atypical setting."

Let's Make a Deal

Hotels are rife with risk and opportunity, and the opportunity to purchase underperforming assets and improve their performance has driven a lot of investors in recent years, Cooper Riley's Erickson says.

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Sales can trigger renovations, but HVS's Payne points out that a deal might simply represent a recapitalization. "It's all on a case-by-case basis, but the majority of transactions don't involve remodeling or repositioning," he says. In early March, Real Capital Analytics (RCA) reported a to-date 2011 hotel transaction volume of \$1.6 billion. Of that, 27 percent, or \$429.6 million, was a sale with a renovation or redevelopment objective.

Parker says that when a property changes hands, the owner is presented with a property or product improvement plan (PIP). Included in the PIP is any number of improvements that the owner must make to obtain or maintain the brand flag. Americans with Disabilities Act (ADA) requirements are also included in all PIPs, Parker says.

Parker-Torres was hired as part of the team restoring the Fairmont Copley Plaza following its sale to FelCor Lodging Trust in August 2010. Though rebranding was not part of the acquisition equation, the hotel did embark on a \$20 million project that includes enhancements to its 383 guest rooms and the Fairmont Gold Lounge, including furniture, fixtures, and equipment (FF&E). The hotel is also adding a new outdoor deck and fitness center on the hotel's rooftop.

When the Grand Hotel Minneapolis was acquired by Pebblebrook Hotel Trust last fall, it turned to Kimpton Hotels & Restaurants to assume operations of the nearly 100-year-old property. Though that transition did prompt some refurbishments to the interiors, Sussman says that the property was able to open as a Kimpton with minimal architectural changes.

"It felt like a men's club to begin with in terms of its traditional nature," Sussman says. "We made it more eclectic, amped it up a bit to give it the Kimpton feel." Much of that Kimpton feel, he says, comes from design "surprises"—a pattern on a pillow or a graphic, for example.

Ramping up Retrofits

Everyone knows that Motel 6 will leave the light on, but these days that bulb is more likely to be a compact fluorescent lamp (CFL). In 2006, the chain began retrofitting its U.S. properties with fluorescent lighting. Today, it's common for hotels across all service levels to employ a range of sustainable strategies, ranging from green housekeeping practices to lighting retrofits and climate-control systems to use of recycled materials.

Hotels have an incentive to operate greener, according to the Environmental Protection Agency (EPA)'s Energy Star program—it reports that U.S. hotels spend nearly \$4 billion on energy annually. Reducing these costs by 10 percent is the equivalent to a \$0.62 ADR increase for limited-service hotels and a \$1.35 ADR increase for full-service hotels, the EPA says. Still, there are challenges to going green—real or perceived costs can be an obstacle, as well as an operator's uncertainty regarding guest expectations and preferences.

One recent report, issued in March by the Center for Hospitality Research at Cornell University, studied hotel



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guests' reactions to guest room sustainability initiatives. Only 30 percent of participants indicated that they would choose a hotel or hotel brand based on the hotel's commitment to sustainability, but guests across the board noticed no differences when using reduced-power liquid crystal display (LCD) televisions and were equally pleased with the use of CFLs and light-emitting diodes (LEDs). The report concludes that owners and operators can confidently install reduced-power televisions and, at a minimum, replace incandescent bulbs with CFLs to save energy.

Erickson says that it's not just a matter of switching out light bulbs, it's also important to look at low-intensity lighting, dimmable fluorescents, and LEDs, especially in common areas, such as corridors, lobbies, and parking garages, where lights stay on 24 hours a day. "You see the results in the utility bill quickly," he says.

Back in the guest room, Booth says that LEDs and fluorescents are making more of an impact on design, but he is quick to add that dimming issues and color technology can make them a "bedeviling" issue.

"We go through great lengths to design lampshades," Booth says. "We line it with a garish pink shade. By using that color inside the shade, we can get the right glow—it looks incandescent." □

Forecast Change 2010 to 2011 in RevPAR by Market

Seattle	8.9%
Oakland	8.4%
San Diego	8.3%
Portland	8.1%
Minneapolis	7.8%
National Average	7.1%
New York	1.9%
Raleigh-Durham	1.7%
Philadelphia	1.0%
Indianapolis	-0.3%
Washington, D.C.	-1.3%

SOURCE: COLLIERS PKF HOSPITALITY RESEARCH, MARCH—MAY 2011 HOTEL HORIZONS REPORT

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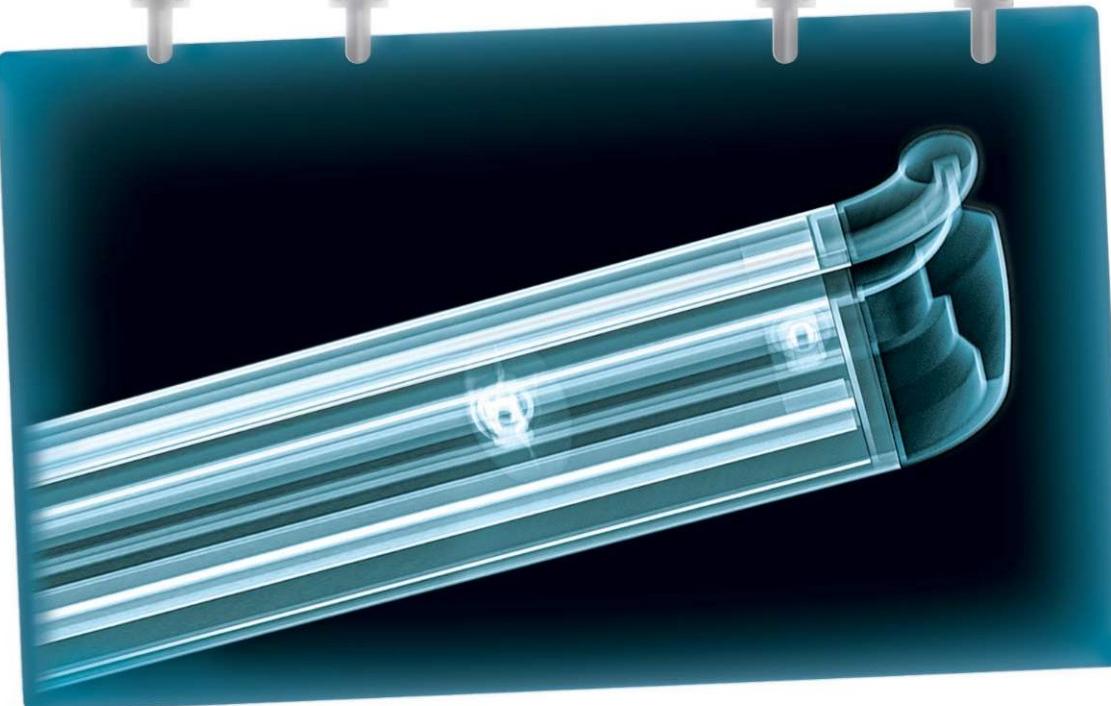
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EHDD ARCHITECTURE DONATED ITS SERVICES TO BUILD ONE SCHOOL TO REPLACE THREE DEVASTATED BY THE 2008 SICHUAN PROVINCE EARTHQUAKE.



TEXT BY LINDSEY M. ROBERTS
PHOTOS COURTESY EHDD ARCHITECTURE

Qian Yang County is located in one of the poorer provinces in western China. After a 2008 earthquake, California architect Jennifer Devlin offered to build a green and seismically safe elementary school. "We have enabled a future for the girls [and boys] who attend the school ... and knowing that is both humbling and empowering," she says.

IT TOOK AN ARCHITECT, a philanthropist, and an international network to bring back an elementary school in Shaanxi Province, China. The magnitude-7.9 earthquake in May of 2008 in Sichuan Province, which also affected Shaanxi to the north, damaged thousands of schools and killed thousands of students in schools that collapsed completely. Shaanxi wasn't as devastated as Sichuan, but some areas lost almost half of their primary and middle schools. Three village schools were lost in the largely agricultural Qian Yang County, in southwest China, hours west of Xi'an.

After the earthquake, the local community in the county asked San Mateo, Calif., resident Rosalyn Koo for help in rebuilding. Koo, 82, a native of Shanghai and former executive vice president of San Francisco architecture firm MBT Associates (now owned by Perkins+Will), has raised funds to educate her goal of

1,000 Shaanxi girls by 2013 through the California-based nonprofit 1990 Institute—and happened to be visiting her girls in their senior high school homeroom during the quake. (That school suffered no damage.)

At the same time that the community asked for help, Koo's friend and frequent informal collaborator, Jennifer Devlin, AIA, of EHDD Architecture in San Francisco, called Koo to offer her services. "The girls were fine, but the devastation was a tragedy, and she was trying to figure out what to do," Devlin, 46, says.

By that fall, Koo had her plan: build one seismically safe and environmentally sustainable building to replace the three damaged village schools in the Zhang Jia Yuen village of Qian Yang. "I saw an opportunity to build a green primary school as a model for people in

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5

Percentage of students from poor, rural areas of China who go to college, as compared to the 70 percent of students from China's major cities who go.

SOURCE: STANFORD UNIVERSITY'S RURAL EDUCATION ACTION PROJECT



China to follow," Koo says. As soon as October, Devlin was on the ground in Shaanxi to observe the local typologies and begin the design process, pro bono. "I was honored to help Roz, who I consider a great mentor, find expression for her dream," Devlin says. Koo raised \$226,000 for the \$500,000 project; the rest came from the local education department. Devlin and her colleagues at EHDD worked with Koo, China's Northwest Design Institute, the BaoJi Design Institute, and Koo's former co-worker, Bay Area-architect Dien Tseng for help with translation and navigating local code. "The very important component of the success of this project was that Roz was connected to the political and social structure of the community," Devlin says, "as opposed to an outsider coming in."

After six weeks of design, six months of building, and time for review and approval, the 12,500-square-foot coed Zhang Jia Yuen Elementary School opened in June 2010 to K-5 students.

Koo's first request for the school was that it be built to withstand a magnitude-8.0 earthquake, so Devlin designed it to meet California's strict code—and then to the new Chinese construction and seismic codes once they were issued toward the end of the design process.

Although the local school typology in Shaanxi is "a two-to-three story box sitting very formally and symmetrically opposite an opening gate" Devlin says, "we immediately put it all on one level, except for the

dormitories at the front of the campus." Local houses, however, tend to have courtyards and compound walls. Devlin designed the school with an entry courtyard separating one building with a multipurpose room, library, and kitchen; another with offices and dorms for teachers. Behind these structures are four classrooms separated by two more courtyards, and then a playfield and vegetable garden in back.

For the walls, Devlin initially wanted to build with more transparency, "which is an American notion," she says. But "for them, the safety and security of the school is paramount." So EHDD put slots in the brick-and-CMU walls around the school to give motorists a glimpse as they drive by, but didn't make them wide enough that someone could get in.

Koo's second request was that the school be green. But if the first request needed to be imported, the second was native to Shaanxi. Koo "was looking at all of the development happening in China and wanted to promote what we are doing so well in California on the awareness of buildings and the impact on the environment," Devlin says. But, "to be quite honest," she adds, "people living in Qian Yang County by all accounts must and do live sustainably—it is an agricultural region where all is used to the maximum." In her scouting trip, Devlin observed corn used as food and insulation, roofs with solar hot-water heaters, and bicycles on the streets. "Our role was really to observe how they lived and recommend some adjustments as to how they might design a school to capture some natural attributes of the place," Devlin says.

For cooling and heating purposes in a region with hot summers and cold winters—but without widespread air conditioning or heating—windows are oriented for summer cross ventilation as well as to maximize southern exposure and limit northern exposure in the winter. North-facing clerestory windows are the exception, offering daylight to help minimize the use of overhead lights. The rooms also feature ceiling fans. On opening day in June 2010, when it was over 100 F, Devlin says that with the fans and cross ventilation, "it felt a good 15 degrees cooler."

The roofs are made of local red clay tile, with photovoltaic panel infrastructure waiting for solar panels. (Koo is currently fundraising for these.) White walls are made of concrete-insulated plaster for thermal comfort and daylight reflection. Insulation also comes from white and silver reflective silk curtains.

"Our hope is that this school becomes a model for classrooms, and not just from a building standpoint," Devlin says. "Providing the right environment for learning is an important investment, which will yield immediate and long-term results for both the students and their communities."

Twelve of the Koo-sponsored girls attend a teacher college close to the school, and "have adopted Zhang Jia Yuen," Koo says, volunteering their time to visit the students and help maintain the grounds. "Given the opportunity and encouragement, girls can easily become leaders together with men—to build China into an enlightened nation state." □

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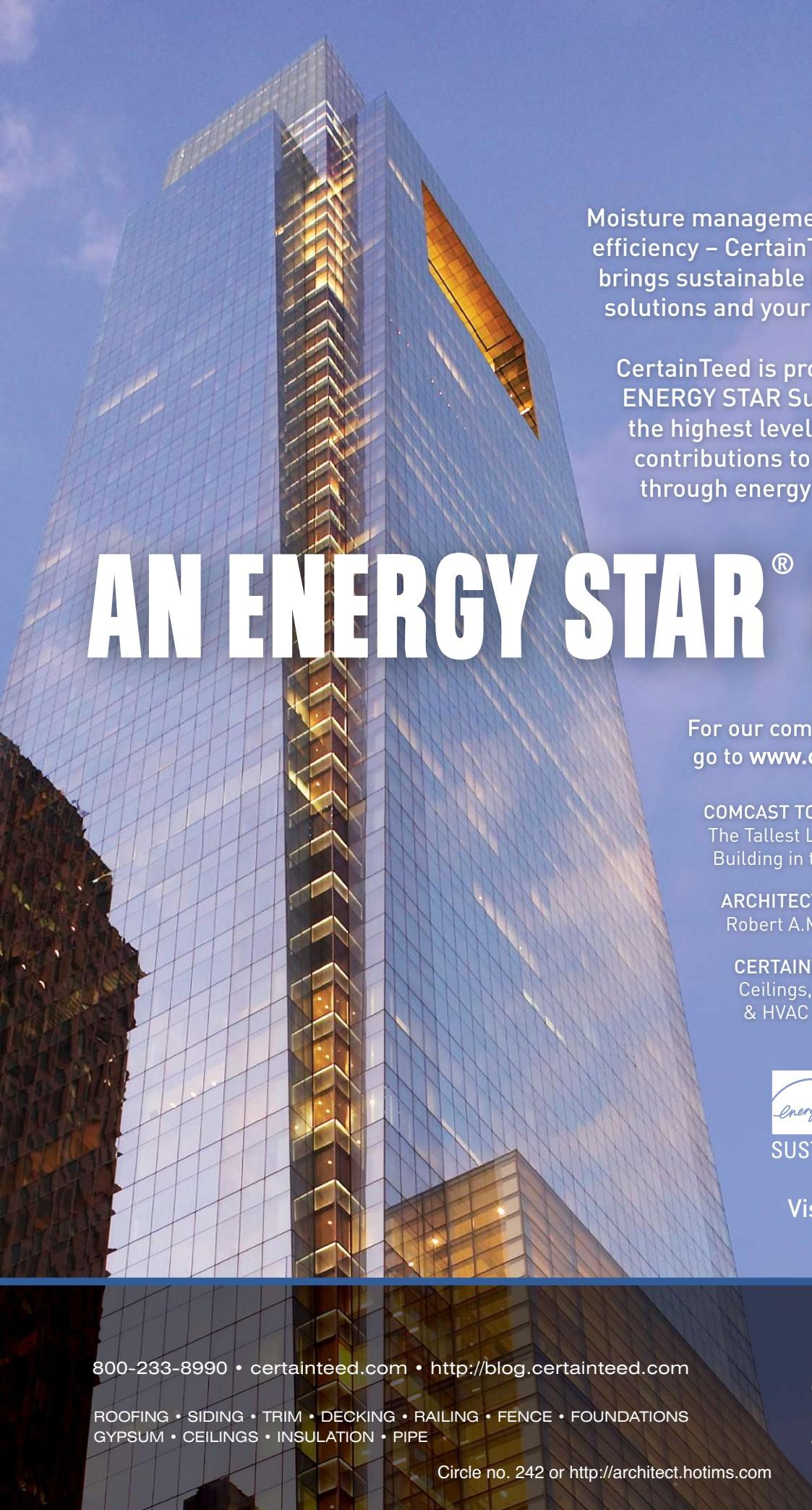
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VISIONARC, A NEW YORK CITY THINK TANK, PUTS DESIGN AT THE SERVICE OF COMPLEX GLOBAL CHALLENGES.

TEXT BY MIMI ZEIGER
PHOTO BY SIOUX NESI



VisionArc is a consultancy run in tandem with Toshiko Mori Architect, the practice founded by **Toshiko Mori** (pictured) in 1981. Mori also teaches at the Harvard Graduate School of Design and chairs the World Economic Forum's Global Agenda Council on Design.

TOSHIKO MORI, FAIA, IS UNFAZED by the kind of large-scale, thorny issues—the fate of the Earth's 332.5 million cubic miles of water, the infrastructure underlying peak oil—that might leave some designers a bit weak in the knees. In fact, where some might see imminent environmental crisis or a geopolitical quagmire, Mori, 59, sees an opportunity for systematic thinking. In 2009, she launched VisionArc, a think tank that probes complex global issues, which operates in parallel to her New York-based architectural practice, Toshiko Mori Architect, and her teaching at the Harvard Graduate School of Design (GSD).

In 2008, Mori was appointed to the World Economic Forum (WEF) Global Agenda Council on Design. As chair of the council, she recently attended the WEF's 2011 Annual Meeting in Davos, Switzerland. So, although VisionArc is a young strategic consultancy, it has quickly

attracted the attention of government officials, CEOs, and venture capitalists who were wooed by the ability of Mori and director Landon Brown, 32, to use design skills to both structure and visualize complex problems.

"Architecture education and our discipline at large can contribute beyond building buildings," Mori explains, before listing the three components she sees as needed for any successful enterprise: "hardware," "software," and "the network."

"Our profession is focused on the hardware, meaning the building craft," she says. "We are somewhat involved in the software, meaning infrastructure and engineering. And architecture has always been part of a civic network. But we need to look at the other problems surrounding us—to use our

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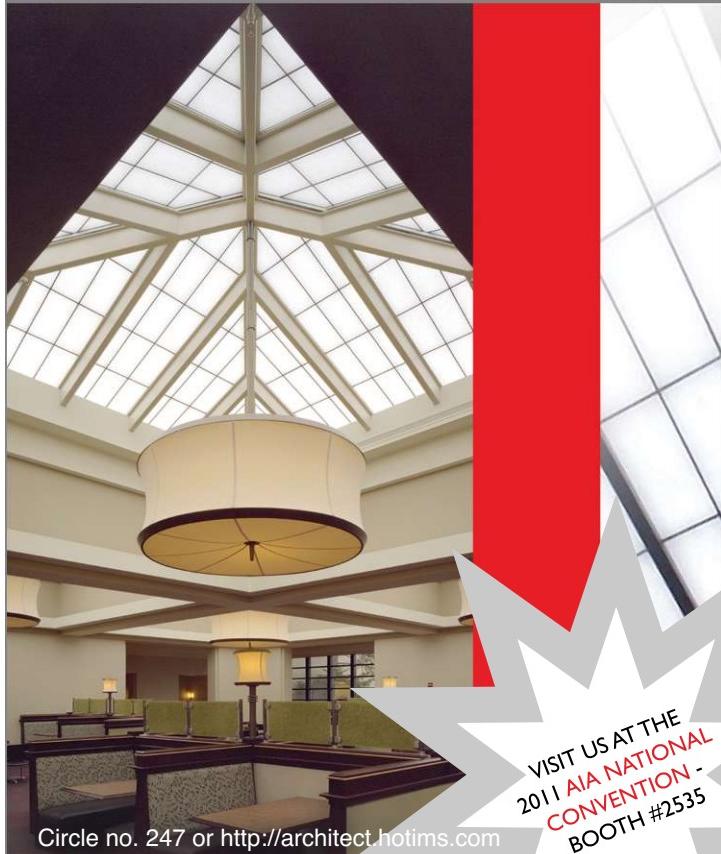


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Subsidence in some parts of Mexico City caused by groundwater withdrawals from the aquifer. VisionArc's Water Guide project investigates water as "a crucial hinge between land use, ecology and politics."



talents to think comprehensively, collaborate, and connect the dots."

Design Blind Spots 2050, one of VisionArc's first endeavors, exemplifies this approach. A research project, exhibition, workshop, and video commissioned by DesignSingapore Council and presented at the 2009 International Council of Societies of Industrial Design World Design Congress in Singapore, it suggests that there are unseen linkages between international economies, population centers, and the environment. Or, as the project distills them: production, mobility, and resources. By using the example of environmentally destructive oil-sands mining in Alberta, Canada, as a case study, Mori and Brown identified areas where strategic design could address critical issues at a top level and ultimately create a new mode of practice. "Architects see spaces in plan, elevation, and section; we have a way of analyzing problems in a three- or four-dimensional way. We can slice through an issue that may not connect in plan," Mori says.

In their case study, issues went far beyond the standard purview of architecture and included the environmental impact of pipelines on natural habitats; existing mining technologies; mine workers and the health of populations living near the oil sands; and policies governing mine operations. VisionArc's research led to proposed solutions for the near future, such as new regional legislation and localized pollution-monitoring by nearby communities, and longer-term visions such as remediated forests and low-impact transportation.

"We mine data that is already there and rigorously and imaginatively translate it in order to find potential connections to industry and natural resources," is how Brown characterizes the VisionArc process.

Which is not to say that architecture itself falls out of the equation. VisionArc produced a study last year for the Ocean Energy Institute in Rockland, Maine, a think tank and venture-capital fund addressing offshore renewable energy. The study included the proposed development of a 50,000-square-foot R&D and venture-capital operations facility, the need for which arose out of VisionArc's comprehensive research on the impact of offshore wind energy on Maine's economy and environment.

If there is any ambivalence in the VisionArc model, it is here, where altruism meets business-development opportunities. Presently, VisionArc is a small, self-sustaining counterpart to Mori's firm that is run by Brown, who brings in consultants and interns as needed. As it grows into a more robust enterprise, there are sure to be tensions between the social mission that drives VisionArc and the bottom line of conventional practice. (Mori's 11-person firm is very much engaged





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in traditional practice, having recently completed a building for the Syracuse Center of Excellence in Environmental and Energy Systems, in Syracuse, N.Y., and the visitors' center at Frank Lloyd Wright's Darwin D. Martin House in Buffalo, N.Y.) Mori speaks of VisionArc as a platform for systems research and a growing network of firms and institutions; although it's self-sustaining financially, this is an untested business model.

Like Mori, Tim Brown, the CEO of IDEO, is also a member of WEF's Global Agenda Council on Design. His book, *Change by Design: How Design Thinking Transforms Organizations and Inspires Innovation* (2009), is often cited as a bridge between the worlds of business and design. Indeed, VisionArc's agenda can be seen as part of the "design thinking" trend (see Mark Lamster's "Business Philosophy?," ARCHITECT, July 2010) as well as part of a slower architectural drift toward research-driven work, which began in earnest in 1998, when OMA founded its own think tank, AMO.

Once considered a holding area for Rem Koolhaas' more academic exercises in datascaping and branding, AMO is now engaged in top-level consulting on a global scale. In February, the firm released *The Energy Report*, a study on renewable energy for 2050 developed with the World Wildlife Federation and the sustainability-minded consultancy Ecofys.

Mori is not interested in carrying the mantel of design thinking, which she categorizes as often limiting itself to the "hardware" side of things, to products and goods. She's after the application of architectural thinking to global policy, politics, economics, and business. Recently, she and Landon Brown were in discussions with members of the WEF and the Japanese prime minister's office about a study called the Carbon Portal, for the design of a system of incentives and monitoring and enforcement mechanisms, to track (and reduce) regional and national carbon footprints in Japan. When the earthquake and tsunami struck, the two redirected their efforts toward the design of risk-response mechanisms. "As we had already been exploring concepts for interconnected tracking systems ... we repurposed this model, but with a focus on how such a system might be employed in a crisis context," Brown says.

In October, Mori was instrumental in organizing the WEF's first Design and Global Challenges conference and workshop at the GSD. The daylong event brought together architecture students, Harvard faculty, and WEF experts on trade, human rights, population growth, and the international monetary system. The workshop, split into six cross-disciplinary working groups, pushed the students beyond the cloister of design, exposing them to the languages of economics, business, and law. Asking students to engage with the multiple crises facing the world expands their architectural education and primes the next generation of practitioners.

On this point, Mori is passionate. "With this type of work, we can be engaged with people who are making decisions," she says. "We can help identify the right problem, instead of inheriting the wrong one." □



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A SURVEY OF NATIONAL ARCHITECTURE POLICIES

AUSTRIA

Austria is a federal state (like Germany), which means that its nine *Bundesländer* are primarily responsible for implementing architectural policies; in other words, provincial governments define their own quality standards for federally funded housing or land-use planning. At the Austrian Parliament's request, progress in the provinces is analyzed every five years.

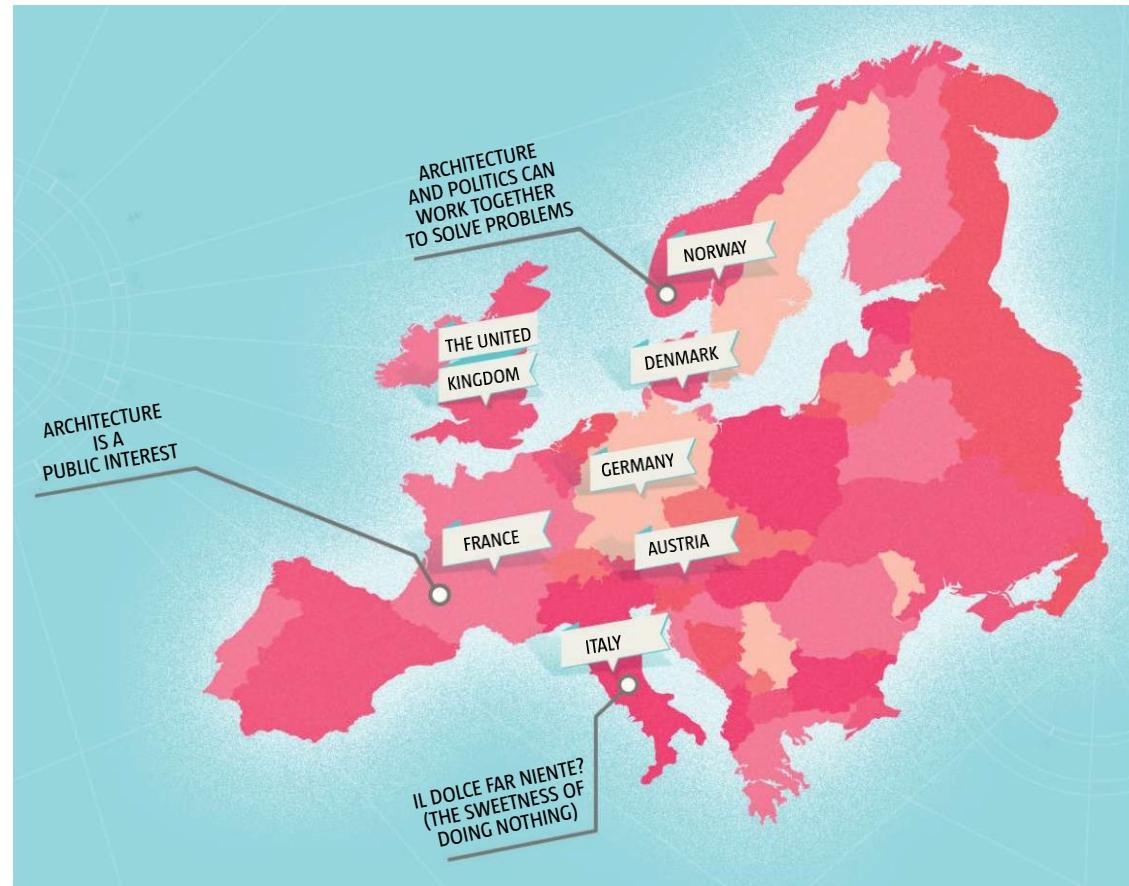
DENMARK

In reliable Scandinavian fashion, Denmark's policy, adopted in 2007, starts by prioritizing "quality of life"—but what's most interesting about the policy, which was presented as a collaboration between the Ministry of Economic and Business Affairs and the Ministry of Culture, is its emphasis on architecture as it promotes tourism and global exports. The policy states, "Danish architectural businesses constitute a competitive, dynamic and globally oriented sector with documented international experience and power of penetration."

FRANCE

The success of France's architecture policies and initiatives owes to a comprehensive, multilayered network that works from the top down to promote the value of design in economic and cultural terms. This network encompasses dozens of councils, interministerial agencies, and other departments.

continued on page 82



STADIUMS, AQUEDUCTS, BRIDGES, opera houses, museums, city halls—going back to the ancients, extraordinary public building projects are the most enduring evidence of a civilization's technological and artistic prowess, and, ineluctably, its political and cultural ambition. Today's courthouses, schools, highways, embassies, and so on are likewise a repository of a nation's ideals and competence at a particular moment. Only a fledgling idea three decades ago, today, architectural policies serve many countries as a powerful tool that may be put in the service of a range of functions, practical and symbolic alike.

France, the Netherlands, Finland, Germany, Denmark, and Norway are just a handful of the two dozen or so countries—located primarily in

Europe—that have introduced robust national architecture policies, state-funded initiatives, or government agencies dedicated to advancing design excellence in the public realm. The idea is only gaining momentum. The Brussels-based European Forum for Architectural Policies (FEPA), established in 1997, compiles best practices, convenes officials, and shares knowledge on how nations may best formulate and implement their own policies or systems. In Europe, a national architectural policy is becoming as standard as, say, adopting a national policy on climate, energy, or housing.

And it makes sense. Why shouldn't all developed nations articulate a position on a field that impacts



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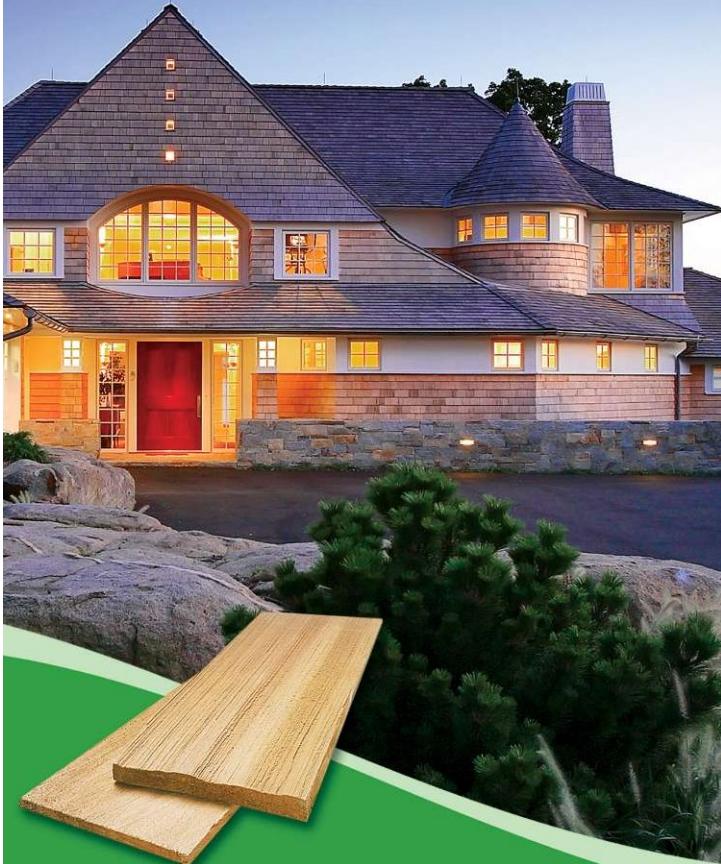


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business

"WE CAN'T HAVE ANY PRECONCEIVED NOTIONS. CERTAINLY WE ARE LOOKING AT OTHER [NATIONS'] APPROACHES, BUT WHATEVER WE COME UP WITH HAS TO WORK WITHIN THE UNITED STATES," SAYS JASON SHUPBACH, NEA.



everything from resource consumption to urban development, public safety to economic growth?

France's system is the oldest and, in many respects, the most successful, proving that government-backed efforts can not only elevate the quality of civic construction but also embed an attitude among politicians and the general population that design is intertwined with myriad matters of national concern.

The defining moment for France's architecture policy came in 1977 with a law that declared architecture "un intérêt public," officially rendering it a social issue and thus the government's responsibility to defend and promote. This law brought about the creation of the Conseil d'Architecture, d'Urbanisme et de l'Environnement (CAUE), with offices across France's 91 administrative departments advising local officials, developers, and citizens on construction projects and competitions.

Norway's national architecture policy, adopted in 2009, is among the most recent. It is also impressively far-reaching, drafted with the participation of 13 of its 18 ministries (ranging from the ministries of Defense to Children and Equality). The 100-plus-page document pointedly regards architecture as an apparatus to improve society, safeguard culture, and stimulate the economy.

Highlighting three major priorities—sustainability, urban and social transformation, and knowledge and innovation—the policy begins with the position that the government should act as a role model and ends with the goal of increasing the visibility of Norwegian architecture internationally. "It's not just about promoting architecture but about seeing how architecture and politics can work together to solve problems," says Lotte Grepp Knutsen, state secretary in the Ministry of Culture.

With one major exception, developed nations have increasingly adopted centralized policies on architecture over the past two decades. Would such action—whether a policy, a federal agency or commission, executive order or some other central effort—be feasible in the United States?

The U.S. government, in its own way, has promoted architecture and design excellence throughout its history: Thomas Jefferson, himself a noteworthy designer, was the earliest proponent of the idea that architecture could play a significant role in the important task of national growth and accretion—then, a very pressing concern for the former colonies. A look at the country's built legacy shows impressive design high points, from City Beautiful urban plans to major infrastructure projects to a vast array of exemplary federally



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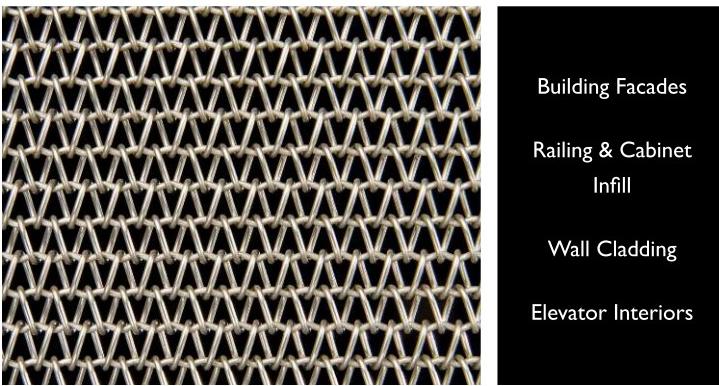
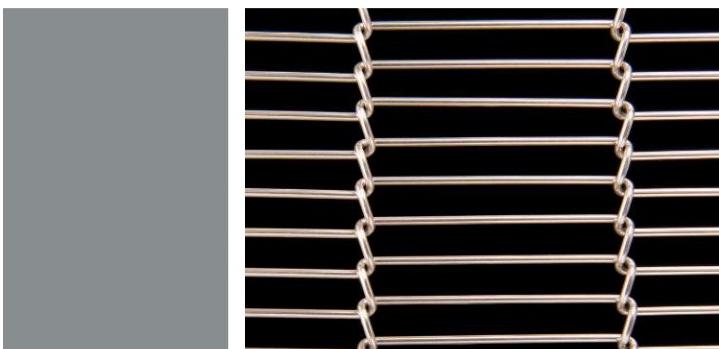
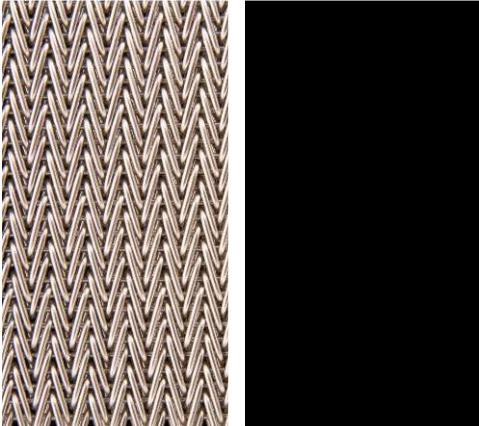


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THE DEFINING MOMENT FOR FRANCE'S ARCHITECTURE POLICY CAME IN 1977 WITH A LAW THAT DECLARED ARCHITECTURE "UN INTÉRÊT PUBLIC," OFFICIALLY RENDERING IT A SOCIAL ISSUE AND THUS THE GOVERNMENT'S RESPONSIBILITY TO DEFEND AND PROMOTE.



funded buildings, memorials, and monuments.

The National Endowment for the Arts (NEA, founded under President Johnson in 1965) and the General Services Administration's Design Excellence Program (launched in 1994 during the Clinton administration) are the most directly engaged in promoting design at the highest level, though the government's efforts are channeled on multiple fronts, including the National Endowment for the Humanities, the President's Committee on the Arts and the Humanities, the Smithsonian, and the State Department (which oversees the country's representation at international expositions and the construction of overseas embassies and residences).

The support is clearly there, but the efforts are dispersed and thus don't register as powerfully as they might with respect to nurturing an awareness among government agencies and the general public of the importance of design to our culture—and also the economy. This might explain why last August the NEA and GSA jointly issued a request for proposals (RFP) for "the research, analysis, and planning of a new design initiative."

A team led by Adam Yarinsky, AIA, of New York-based Architecture Research Office (ARO); Syracuse University architecture dean Mark Robbins, AIA; and HR&A partner James Lima is currently exploring strategies that, as requested by the RFP, "enhance the GSA's commitment to design excellence, and inform the NEA's investments in good design, livable communities, and creative place-making." The RFP's overall aim is to "inculcate an ethic of quality design across federal agencies in such areas as urban design, landscape architecture, graphic design, and in public spaces generally."

Asked how he envisions the final form or result of the study, Jason Shupbach, the NEA's director of design, says, "We can't have any preconceived notions. Certainly we are looking at other [nations'] approaches, but whatever we come up with has to work within the United States and the system we have."

The current inquiry has roots in a series of discussions that Yarinsky and engineer Guy Nordenson organized in 2008, debating issues about infrastructure, sustainability, and climate control. This led to their proposal for the formation of a sort of federal design





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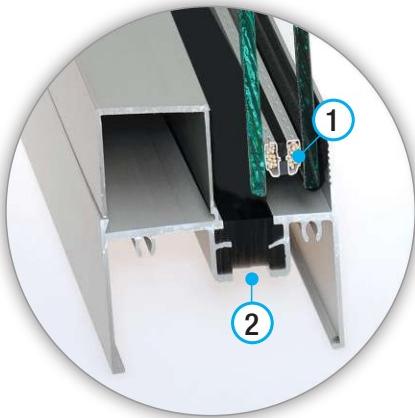
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commission that would assist federal agencies and recipients of federal funding to ensure a rigorous design review and procurement process. At that moment, Congress was just about to approve the \$789 billion stimulus package, which promised to fund major infrastructure projects, so the timing seemed right.

"Many of the issues that he and I were interested in—such as linking infrastructure planning, transportation, and urban livability to development—are definitely part of our thinking," says Yarinsky, whose team will complete its study this spring.

"In the federal government, there is a recognition that decision-making is interrelated—for example, what HUD [U.S. Department of Housing and Urban Development] or DOT [U.S. Department of Transportation] are doing overlaps and there's an understanding of the need for everyone to talk to each other," says Robbins. "So one thing we are considering is how to enhance communications among the agencies." Several agencies already have a comfortable history of collaborating on design issues; for example, the State Department is looking to the GSA for guidance on its own design excellence program for overseas constructions.

The complexity of the government's structure and division of responsibilities is just one of the many obstacles that any sort of unified position or strategy would face. The U.S. is hardly as compact as Norway (population 5 million) or even France (population 62 million), and the notion of tax dollars supporting something explicitly regarded as "cultural" is regarded with suspicion by many officials on Capitol Hill. Never mind the fact that architecture and design are not merely artistic or cultural pursuits.

In the U.S., "culture" in the most general sense tends to get polarized and politicized in a way that is inconceivable in Europe, where citizens expect their governments to subsidize public amenities, including the arts. "The political or ideological question never comes up," says French architectural historian Jean-Louis Cohen, explaining that there is little risk that France's architecture programs will be defunded even during the most conservative political cycles. "They have proven to provide tangible benefits to the built environment, the efficiency of development, and French culture."

Owing to the efforts of FEPAs and other forums, such as regular assemblies among the world's ministers of culture, many other countries, and certainly the





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continued from page 74

GERMANY

The Federal Ministry of Transport, Building and Housing launched the Architecture and Baukultur Initiative in 2000. A coalition of nearly three dozen government, university, and industry affiliates—in addition to every imaginable design-related professional organization—the initiative is primarily focused on building awareness among all those involved in the building process and outlining regulations for federal procurement competitions.

ITALY

The country with the world's highest number of architects per capita, Italy drafted an architecture policy—but lacks a political champion who will back it. The government created le Direzione Generale per l'Architettura e l'Arte Contemporanea (DARC) in 2001, drawing on the French model of financing municipal competitions—a function DARC has failed to perform.

THE NETHERLANDS

This country has the interesting government post of chief architect, a position that rotates among professionals—usually an admired private practitioner, not a career bureaucrat. The chief architect's responsibility is to "stimulate the architectural quality and urban suitability of government buildings" and to advise the government on policy as well as the selection of architects for state projects.

NORWAY

Norway's policy integrates discussions about landscape architecture, open space, livable cities, cultural heritage, sustainability, and the expansion of a knowledge industry. The National Tourist Routes perhaps best exemplifies the ambition of the policy: A project of the Norwegian Public Roads Administration, the campaign to develop and improve 18 routes has led to the completion of dozens of stunning works, including observation platforms, footbridges, and kiosks by emerging architects and landscape architects.

UNITED KINGDOM

The Commission for Architecture and the Built Environment (CABE) is often held up as a model that lifts design standards in the development of buildings and public spaces. Since its founding in 1999, CABE—which became a part of the Design Council as of April 1—has conducted over 3,000 reviews of major developments, offering independent critical and technical advice.

USA

The U.S. has enacted more design initiatives than most people are aware of—with particular landmarks occurring during the presidencies of Kennedy, Johnson, Nixon, Reagan, and Clinton, including the establishment of the National Endowment for the Arts, the Federal Design Improvement Program, and the Presidential Design Awards.



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remaining members of the European Union, are on the path toward adopting official architecture policies, convinced of the long-term economic and social payoff of promoting architecture and all it encompasses—buildings, infrastructure, public space, neighborhoods, towns. The U.S. lacks a cabinet-level body or federal-agency equivalent to the culture ministries of its European counterparts, but even among those forward-looking nations that have adopted top-down architecture policies, there have been setbacks.

The near-death experience of the Commission for Architecture and the Built Environment (CABE), the adviser to the British government on architecture, urban design, and public space, might be seen as a cautionary tale for nations adopting new architecture policies. Long held up as a role model for its good work—since 1999, it has conducted thousands of independent design reviews which have influenced authorities and the fate of a good many developments—it nonetheless lost all of its parliamentary funding in October 2010 as a result of the budget crisis.

A last-minute merger with the Design Council saved CABE, though its staff and functions have been severely cut back. Interestingly, the Design Council's federal funding was spared, perhaps due to its affiliation with the Department of Business and thus the causes of industry and manufacturing. (CABE's support came primarily from the Department of Culture.) Going



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forward, both will become full-time charities, relying more on commercial sources of income, such as fee-based consultation, a service CABE has performed for some years for the 2012 Olympic committee or the national rail authority, for example. In retrospect, CABE director Paul Finch says that other funding models, such as taxes on new constructions—like the taxes that sustain France's CAUE—would have entrenched the organization more deeply within the government system.

At the heart of the matter is the value placed on the long term versus the short term. In order for the U.S. to remain vibrant and competitive—as President Barack Obama cited as key to the nation's recovery during his State of the Union address earlier this year—it is clear which view is the wiser. High-speed rail, sustainability, and clean energy, for example, represent sound long-term investments for the country (and planet).

A well-conceived, comprehensive architecture policy could work toward combating the myopic politics that consistently stall such efforts by providing a valuable rubric to link these concerns to one another and to issues periphery to design—especially economic issues such as job creation, expanding exports, or improving national health, just to name a few examples.

Though the likelihood of a national architecture policy for the U.S. may appear inextricably bound to partisan electoral outcomes, no political party owns design—just as no party owns the issues that affect design and are affected in turn by design. “Excellence in design is integral to the federal government’s responsible stewardship of public resources.... It should not be viewed as a luxury added on at extra cost but as a process for increasing the efficiency and quality of our lives. Our ability to compete effectively in international markets depends largely on an often overlooked, but integral element—design quality.” That was not a European culture czar, but rather late President Ronald Reagan, speaking during his presentation of the Presidential Design Awards in 1987.

“Money is getting spent either way, so one would hope that each gesture have as many potential outcomes as possible,” says Robbins. “If we can come up with something that demonstrates the value of design, not as some kind of post-facto mass or decoration but as fundamental to rethinking our environments and the way we live, that would be incredible. The challenge is to show how the strength of our design disciplines can work towards making all the other parts of our culture better, more efficient and successful.” □



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John D'Amico

THE PROJECT-MANAGER-TURNED-PUBLIC-SERVANT DISCUSSES THE IDEAS THAT HELPED HIM DEFEAT AN INCUMBENT FOR A SEAT ON WEST HOLLYWOOD'S CITY COUNCIL.



INTERVIEW BY NATE BERG
PHOTO BY EMILY SANDIFER

John D'Amico joined West Hollywood's City Council in March. "I build buildings for a living, and I'll be the first to tell you that cities are never finished," D'Amico says. "And neither is West Hollywood."

JOHN D'AMICO, 47, IS THE NEWEST MEMBER of the City Council of West Hollywood, Calif., which is a small, independent city of 34,000 people almost completely surrounded by the metropolis of Los Angeles. But unlike the typical cadre of attorneys and organizers who fill these sorts of seats in cities across the country, D'Amico comes to his new role with a master's degree in architecture and urban design and a second in aesthetics and politics, plus more than 20 years of experience in the field. In his day job, he's a project manager for building projects at the University of California at Los Angeles, and he previously served five years on the West Hollywood Planning Commission. As he settles into his new office, D'Amico offers some thoughts on the urbanism of his city, where it went wrong, and how it can turn itself around.

This March, in your first run for city council, you unseated the incumbent. Why did the voters pick you? I believe I was successful because in most conversations I talked about the built environment and how it seemed to be at risk. Even if they [voters] had only moved here in the recent past, they really felt like the city was headed in the wrong direction. One of the expressions I used was "bigger, faster, louder West Hollywood has to stop."

Do you really feel that the built environment is a platform that people can relate to and understand? I do. The city's been drifting towards supersizing everything and stacking a layer or two of housing on top of all the commercial streets, as well as allowing one- or



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two-story bungalows or small garden court apartments to turn into eight-unit buildings four stories tall. I think that really rubbed many of us the wrong way.

In the tiny little 1.9 square miles of West Hollywood, we get tens of thousands of visitors every week from Los Angeles and other parts of the county, so I think there's a sense that adding 10,000 new apartments is not going to make West Hollywood a more interesting place. Nor is it going to affect the bottom line of the city. It's just going to make it more crowded.

From an urban-planning perspective, what sort of strategy do you see for your city going forward?

I think it has to really focus on two different but complementary ideas of urbanism. The first is that everyone in Los Angeles has to own a car, and we've got to just admit it. We may not want to own a car, but we go to work every day, and we have to be in different places, so we own cars. People who want to come to our city, they want to come in their cars, have a place to park, enjoy their night of being entertained in West Hollywood, and then drive home.

The city has been trying to pretend, it seems, that cars and traffic are not our problems. But I think not only are they West Hollywood's problem, in some ways we are creating the problem, because we don't provide the kind of services for people in automobiles that we should. The second part of it is, we need for those of us who live here, once we get home, to be convinced to stay out of our cars. And to provide neighborhood-serving businesses that keep people out of their cars.

It's interesting how parking can play a sort of invisible role in determining how a place is used. It seems almost paradoxical, but walkability does, in some sense, rely on parking.

It's the kind of thing that's obvious, and we in West Hollywood haven't yet figured it out, even though we collect \$10 million in parking fees and tickets every year. I think it's been the undone thing and I hope to help get some of that done.

How has your architecture and urban-planning experience informed your vision of where West Hollywood should be going?

I certainly want development to continue in West Hollywood, but the kind of development, and the scale of the development, and the focus of it, needs to change, especially given how much denser the city has become in the past 10 years. I think it's time to think about what are places of commercial activity and what are places of residential activity, and where [do] those two exist in the same place.

The city has been pushing for the past 10 years this idea of mixed-use housing and, unfortunately, West Hollywood is a city that exists mostly along a central backbone of Santa Monica Boulevard. And what I have been saying for many years is that to overload that backbone with all that housing and all those new cars and trips will just turn it into a completely useless boulevard.

My sense is that mixed-use works best on a grid and not on a line. I think there's been some wishful thinking on the part of the incumbents that the subway would come, we'd have all this mixed-use building, and it would be this magical place where people would emerge from the subway and they would come and buy their \$15 martinis and leave by the subway, and those of us who lived here wouldn't have to deal with their cars and their traffic. But that is a future that, if it ever comes to West Hollywood, it's not coming in the next 10 or 20 or probably 30 years. □

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→ LOCAL MARKET

Columbia, S.C.

TEXT BY MARGOT CARMICHAEL LESTER
AND CAROLYN FOY EVANS

MARKET STRENGTHS

- Relatively stable local economy
- Central location, proximity to Charlotte, N.C., and Atlanta
- Attractive to and affordable for commuters

MARKET CONCERN

- Reduced local tax base thanks to state presence
- Looming state budget cuts
- Unfocused approach to growth and development

Columbia, the state capital, weathered the bad economy better than most because its main employers are the University of South Carolina, the state government, and the nearby U.S. Army Training Center and Fort Jackson. "The university has learned to leverage resources through private resources and grants, and there's a little state support," says Michael Watson, AIA, principal of local firm Watson Tate Savory Liollo Architecture. "Federal work is still pretty active, but the private sector is dead right now due to lack of

financing and lack of owner-occupied deals," laments Scott Garvin, AIA, president of local Garvin Design Group.

POPULATION & JOB GROWTH

2010 population: 129,272. The Columbia metropolitan statistical area is growing at about 2.0% annually. The unemployment rate in February was 8.5%. Job growth increased 11.9% from 2000 to 2010.

Most of the job growth came from the healthcare, insurance, advanced-manufacturing, and retail sectors, according to James Gambrell, the city's director of economic development. "Our [future] job growth is hindered slightly by the continued downsizing of state government."

RESIDENTIAL MARKET

The median home sale price was \$180,000 in April, up from \$148,000 for the same period last year.

"The demand in the marketplace is for more innovative development

in multifamily ... and mixed-use properties," notes Doug Quackenbush, AIA, principal at Columbia-based Quackenbush Architects + Planners. "I see a real cultural shift away from sprawl."

COMMERCIAL REAL ESTATE MARKET

The average asking rate for Class A office space, which is about 40% of the total market, ranges from \$17 to \$21 p.s.f. on 87% occupancy. "The real issue is the lack of financing in the market," says Gambrell.

FORECAST

"I see the future of Columbia having growth that is more incremental and tentative. With Columbia's strategic location, it's destined to be the next great city in the Southeast, after Charlotte and Atlanta overwhelm people," Watson says. "Here, there are no natural boundaries to stop sprawl—that is a concern. But with the low-density town ripe for infill growth, done right, Columbia could be a great city of the future."

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EXPANSION INDEX VALUE, COLUMBIA METRO AREA (April 2011)

The Expansion Index from Reed Construction Data is a 12- to 18-month look ahead at the construction marketplace. A value of 1.0 or higher signifies growth.

SOURCE: REED CONSTRUCTION DATA



Horizon I Research Facility

ARCHITECT: Watson Tate Savory Liollo Architecture, Columbia.
COMPLETION: 2013.
BRIEF: \$44 million, 125,000-s.f. facility houses labs and offices for the Innovista Research Campus at USC, where researchers test new energy sources. A sister building is in the master plan.



USC Thomas Cooper Library Special Collections Addition

ARCHITECT: Watson Tate Savory Liollo Architecture, Columbia.
COMPLETION: 2011.
BRIEF: \$16 million, 50,000-s.f. addition controls indoor conditions for the preservation of rare books while admitting some daylight for a pleasant reading environment.



Main + Gervais Office Tower

ARCHITECT: DudaPaine Architects, Durham, N.C.
COMPLETION: 2010.
BRIEF: \$37.5 million, 18-story office and retail high-rise whose southern façade reflects the state capitol, with a two-story terrace and a six-story parking deck.



Mast General Store

ARCHITECT: Garvin Design Group, Columbia.
COMPLETION: 2011.
BRIEF: 42,000-s.f. renovation of historic 1920s Lourie Building into a Mast General Store and two stories of apartments. The project will use \$2 million in Recovery Zone Facility Bonds from the American Recovery and Reinvestment Act of 2009.

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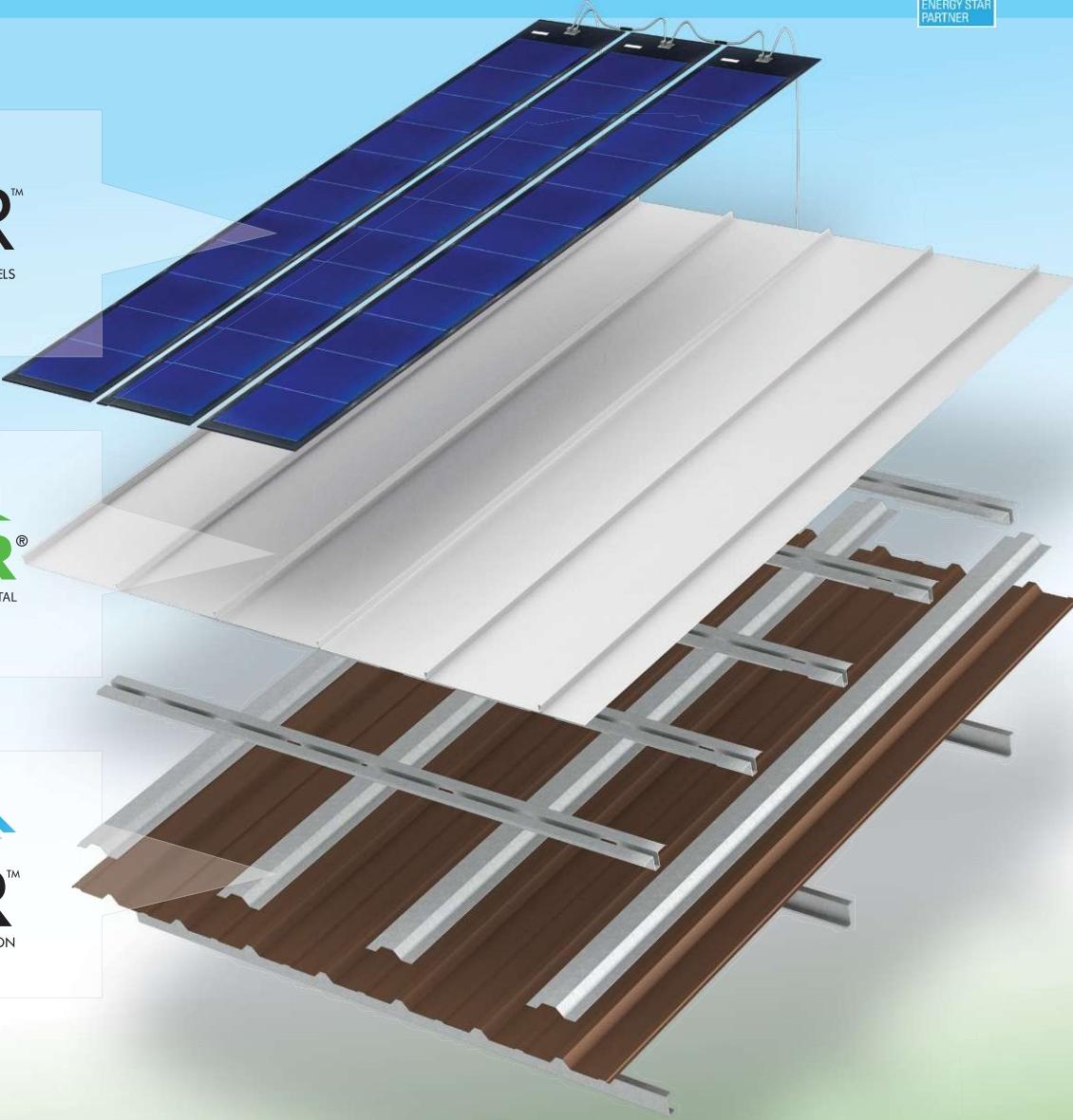
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TECHNOLOGY

→PRODUCTS

Task Lamps

EDITED BY LAURIE GRANT



Introduced in 1921, **La Lampe Gras** is back in production and available in the United States through Holly Hunt. The **205 task lamp** family includes several models, with base, arms, cord, and shade in different finishes, (WH, with a gloss-white-painted steel base, steel arms, a chromed shade, and a red cord is shown.) Each lamp is supported on a fixed 14" arm; a shorter adjustable arm measures 6½". Wall-mounted and floor-lamp models are also available. lampegrasusa.com • Circle 100

Designed in 1937 by Jac Jacobsen, **Luxo's iconic L-1 8151** is supplied with an 11w compact fluorescent bulb with a rated maximum of 40W. The spring-balanced arms are 41" long and the 3.7-lb. lamp is supplied with a table bracket. A table-base accessory (shown) in white, black, silver gray, or chrome is also available. Since its debut on the market, 25 million L-1 8151 luminaires have been sold worldwide. luxo.com • Circle 101

Flos' Kelvin LED, designed by Antonio Citterio with Toan Nguyen, consumes 8W of power and has a color rendering index of 95 and a color temperature of 3,700 K. Thirty LEDs are covered by an ad hoc diffuser created using a chemical photo-engraving technique. The lamp can reach up to 512mm tall and 581mm long. Other features include an electronic on-off switch with the optical mechanism located in the die-cast aluminum head, 355 degrees of head rotation, and 360-degree rotation of the pantograph arm. *flos.it* • Circle 102



The **Scantling** fixture from **Marsel** was designed by Mathias Hahn as a combination of basic geometric shapes in wood and metal. A system of arms and hinges allows the lacquered aluminum shade to rotate 360 degrees. Supported by a lacquered iron stem and base, the lamp's arms are made from solid oak and the shade from spun and powdercoated aluminum in white or stone gray. A switch for the incandescent bulb is built into the diffuser. *marsel.com* • Circle 103



Designed for **Philips Lightolier** by Michael Lax in 1965, the **Lytegem** lamp is part of the permanent collection of New York's Museum of Modern Art. It is now available in a limited edition with a white, black, or gunmetal base, and a white, black, or persimmon shade. It has a hi-low switch for two levels of illumination and a Multigroove anti-glare band. The fixture can be wall-mounted and has an adjustable telescoping arm to 15". A 12v, 25w automotive bulb is included. *lightolier.com* • Circle 106

Ninety, designed by Shawn Littrell for **Luxo**, uses four dimmable 1.5W LEDs to offer white light with a color temperature of 3,000 K and color rendering of more than 90. The lightweight aluminum lamp is available in three colors (white, black, and silver gray), and in long (32.5") and short (28.3") armed models. The fixture head measures 5.43" long. Base options include table base, clamp, and table-insert bracket. *luxo.com* • Circle 107



Peter Stathis' **Link** LED task lamp for **Pablo** features a shade that also serves as a handle. The lamp uses 7.5W and has a color temperature of 3,300 K. The aluminum fixture is available in medium (36" arm reach) and small (26 1/2" arm reach) sizes and in table, floor, clamp, and wall-mount models. Seven finishes are available. The fixture features a 360-degree swivel from the base, variable height control, and a detachable power supply with universal plug option. pablodesigns.com • Circle 104

Designed in collaboration with Foster + Partners in 2007, the **Dash** task light from **Steelcase** is made with 32% recycled content and is 97% recyclable. Its 8W LED array, which has a color temperature of 3,500 K, is rated for 50,000 hours and has continuous-range dimming control from 100% to 15%. The lamp's structure is articulated at three pivot points, and the head features a polished-reflector and convection airflow for heat dissipation. Nine colors are available. steelcase.com • Circle 105

Successful Living from **Diesel** with **Foscarini** released **Perf** in 2010, based on the perforated lamps traditional in North Africa. **Perf** is available in four colors, and as a wall lamp, reading lamp, or table lamp. The table lamp (shown) is 22 1/4" tall. All of the lamps can be lit by halogen or incandescent bulbs. diesel.foscarini.com • Circle 108

Marco Zito's **Tua** table lamp for **Foscarini** is made from a single piece of bent aluminum, lacquered white. A halogen bulb hides within the apex of the curve, which serves as both the lamp's structural support and shade. The lamp, inspired by the palm of the hand, is 15cm long, 24cm high, and 14cm deep. foscarini.com • Circle 109

→IT

Who Loves the Sun?

FOUR RECOMMENDED TOOLS FOR MODELING DAYLIGHT.

TEXT BY KRISTON CAPPIS
ILLUSTRATIONS BY PETER ARKLE

THERE IS NO LACK of data when it comes to sunlight striking a building's surface, which means that the software tools used for daylighting modeling must be suited to the specific task at hand. Architects relish tools that emphasize a graphical interface and provide them with immediate feedback on how a design decision affects daylighting and vice versa—whereas engineers may prefer tools that enable them to manipulate raw daylighting data at the code level. Four designers spoke to ARCHITECT to shed some light on which daylighting modeling software tools they use, and why.



Gustavo Brunelli, BDSP Partnership

An associate in the environmental group at engineering firm BDSP Partnership with a background in architecture, Gustavo Brunelli says that his firm uses **Rhino** (Rhinoceros 4.0, \$995) as its primary modeling tool. "It's very smooth for building in 3D," Brunelli says.

Brunelli and BDSP Partnership worked with Hopkins Architects to maximize the energy-saving features of the roof lights for the Hopkins-designed velodrome for the 2012 Olympic and Paralympic Games in London. The building features a dramatic, sloping roof design that incorporates natural cooling, water harvesting, and daylighting—features that BDSP modeled using Rhino.

Brunelli says that BDSP uses other tools, including the open-source Unix emulator Radiance, for various daylighting modeling tasks. But the work often winds up back in Rhino, one way or another. "We can do all the simulation for the design using Rhino, including the energy-saving and water-saving features," he says. "We help the architects realize their design. We can give it to them as something they can read."

Surface engineers, lighting architects, and environmental engineers at BDSP use different tools, but Rhino serves as the lingua franca. "Ecotect exports directly into Rhino," Brunelli says, making it useful for quick adjustments on a number of projects.

RHINO ALLOWS BRIAN COURT TO EXPERIMENT WITH THE FORMAL GEOMETRY OF A SOLAR ARRAY. BUT GRASSHOPPER ALLOWS HIM TO GENERATE EFFICIENCY RATES FOR DIFFERENT PERMUTATIONS OF PANEL ORIENTATIONS—FOR BOTH ENERGY AND DAYLIGHTING.

Brian Court, The Miller Hull Partnership

For Seattle-based Brian Court, AIA, an associate at the Miller Hull Partnership, finding enough daylight can be a challenge in itself. The firm's design for the Cascadia Center for Sustainable Design and Construction in Seattle incorporates a solar array encompassing an area 40 percent larger than the site area: The array overhangs the building's edge. It will provide 100 percent of the building's energy, but it presents a daylighting challenge.

"We have the photovoltaic array stretching out to grab every drop of sunshine on the site," Court says. Tilting the array improves its efficiency but requires that the panels be spaced farther apart. Court has used the **Grasshopper plug-in** (version 0.8, requires Rhino 4 SR8) for Rhino in order to determine the most efficient solar-panel arrangement—for energy and for daylighting.

Rhino allows him to experiment with the formal geometry of the array, Court says. But Grasshopper allows him to generate efficiency rates for different permutations of panel orientations. "It was a long learning process to determine where the useful daylight was coming through the sky and how to balance that with really strict power-generation requirements," he says. "It's an iterative, back-and-forth process."



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Jason Olsen, EYP Architecture & Engineering

The engineers at EYP use a variety of tools for daylighting modeling, says senior designer Jason Olsen, AIA—but the architects use **Ecotect Analysis** (Autodesk, \$1,495). “It’s basically a graphic visualization of how daylight penetrates a space,” he says. “It gives you really clear diagrammatic results.”

In the early conceptual stages of a project, Ecotect allows designers to see directly how opening up walls or introducing skylights affects daylighting. “You can build natively within Ecotect, or you can import files and use it as the interface,” he says. It’s especially useful for doing clear comparative studies for orientation.

“One of the great advantages beyond the graphical interface,” Olsen says, “is that it produces some pretty rich imagery for client presentation. We use it in all phases in our design process.”



Giulio Antonutto, Arup

An open-source software tool developed in 1985 by the U.S. Department of Energy’s Lawrence Berkeley National Laboratory, **Radiance** is still widely used today, says Giulio Antonutto, senior lighting designer for Arup. He says that its resilience is a testament to its versatility.

“You can do anything with it,” Antonutto says. “It’s very powerful. You can measure volume or calculate sound. We use it for sound modeling, reflections, simulating complex optical systems.” In part, its power as a daylighting modeling engine stems from the fact that designers can customize Radiance to any number of tasks. “We have a unified directory of the latest version, but there are lots of unofficial releases that anyone can modify to use for his own computer,” Antonutto says. Arup uses hundreds of custom Radiance scripts for tasks such as modeling solar exposure.

Radiance lacks a graphical interface, Antonutto explains, and it requires heavy Unix coding—so it’s not for the faint of heart. But programmers working with Radiance can import models from any program, and designers continue to modify it to keep up with other systems. “It adapts over time.” □

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Learning Objectives

1. Describe the unique design element used in a Brooklyn high-rise to distract the eye from vertical lines.
2. Describe the unique design element used at the University of Waterloo that makes the curtainwall appear to be three-dimensional.
3. Describe how the Land Port at Massena combines transparency with explosion resistance.
4. List two tools used by the design groups in the three projects featured that aided in design, selection or placement of the curtainwall.

→CONTINUING EDUCATION

Customization for the Masses

EVEN ON A BUDGET AND DESPITE ITS POPULARITY, DESIGNERS CAN MAKE CURTAINWALL STAND OUT FROM THE CROWD.



TEXT BY CHARLES LINN, FAIA

WHEN IT COMES TO CONSTRUCTING large areas of transparent building envelope quickly and cheaply, curtainwall is, and may always be, the reigning champion. In this age of mass customization, the ubiquitous enclosure system need not be dull. Manufacturers can rapidly produce extrusions and spandrel and glazing materials that will yield nearly anything architects want, from the sensuous stainless steel vertical lines of 8 Spruce Street (formerly Beekman Tower) by Frank Gehry, FAIA, to the horizontal ceramic rods that march up the sides of the New York Times building by Renzo Piano, Hon. FAIA.

However, there aren't many architects out there working with Gehry- or Piano-size budgets. The

challenge for the have-nots is finding ways of designing buildings that will stand out from the hundreds of millions of square feet of innocuous curtainwall erected all over the globe over the past half-century.

Since structural silicon eliminated projecting mullion caps, the greatest innovations have been in what the extrusion will be glazed with—not what kind of extrusion will be used. Shopping around for a fabricator and prudently selecting glass and spandrel materials often opens up intriguing design possibilities that can be achieved at a very slight cost premium.

Façade as Graphic Design

BFC Partners, the owner-builder of Toren, a residential tower in Brooklyn, N.Y., began meeting with Skidmore, Owings & Merrill (SOM) five years ago with a difficult problem: the need to differentiate its project from the grid-paper-faced condos that seemed to be sprouting up every other week in New York City.

"There were definitely graphic intentions here," says Kristopher Takacs, AIA, who was the project manager for SOM. The firm approached the design of the façades as they would the graphic design of a wrapper for a package, he says. Taking vertical bands of material, and slicing and jogging them left and right, was intended to distract the observer's eyes from the column lines. "Usually, verticality is something you celebrate in a tower. In this case, we did not want to make it a heroically tall building. Thirty-seven stories in Brooklyn is already pretty tall," Takacs says.



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The design team located a manufacturer in South America that could translate its elevations into several panel types, which were then configured into some 200 unitized glass-and-aluminum panel units, most 10 feet tall. Many different combinations of the units were installed in nearly every floor.

FINDING THE ARGENTINIAN MANUFACTURER "ALLOWED US TO TAKE ADVANTAGE OF THE GLOBAL ECONOMY FOR CONSTRUCTION MATERIALS."

—KRISTOPHER TAKACS,
PROJECT MANAGER



Clear vision glass is pushed toward the vertical edges of the building, while darker glass is restricted to the center of each façade. The columns of the steel-framed building were pulled away from the corners as well. This lightens up the appearance of the structure and opens up the corner views looking from the inside of the building out. Google Earth was used to verify the nature and quality of the views from each part of the façade.

Large-scale unitized curtainwall construction is not unusual for New York City residential high-rises, and is normally favored because the repetitive manufacture of hundreds of units makes it extremely economical. Unfortunately, the very definition of repetition means that almost every residential tower in the city looks exactly like the next.

At Toren, which means "tower" in Dutch, the opposite approach was needed. While the budget for the project was very conservative, with some effort, the design team was able to locate a manufacturer in Argentina that could execute a complex design without a cost premium. It translated SOM's elevations into eight vision and spandrel panel types, ranging between 2 to 6 feet in width. These, in turn, were configured into some 200 unitized, pressure-equalized glass-and-aluminum panel units, most of them 10 feet tall to span from floor to floor.

The aluminum panels come in two types, both bright silver. Some are flat, and the others are embossed with 3-inch- or 5-inch-diameter dimples. The structural-glazed glass panels contain spandrel or vision glass; the operable windows (awnings) always have vision glass. Clear and dark glass were used for both the vision and spandrel panels. The lighter-glass spandrel, which is paired with the clear vision glass, has gray frit applied to it; the dark spandrel paired with the darker vision glass has a layer of black frit.

During installation, many different combinations of a few basic units were installed in nearly every floor. It was the unique order in which they were installed that allowed Toren's unusual façades to emerge. Even

the building's crenellated podium is a variant of the curtainwall system.

The design team had first considered window-wall systems (typically the first choice of residential developers, because of their low cost and ease of installation), but found their ubiquitous appearance limiting to creativity. "We did a lot of 'optioneering' and what we came up with was curtainwall," Takacs says. That decision was informed by the expertise of curtainwall design specialists Israel Berger & Associates. The key, however, was finding the Argentinian manufacturer. "That allowed us to take advantage of the global economy for construction materials," Takacs says. "The quality of their product is excellent. And the owner-builder was able to stay within their budget throughout the whole construction process." The envelope materials budget was approximately \$50 per square foot.

SOM designers went to Uruguay and Argentina for a series of meetings to study product quality before selection. These meetings included mock-ups and full-scale testing. For its part, the manufacturer had an employee on site full-time during construction. The project, which was completed last year and whose apartments have sold very well despite the recession, is on target to receive LEED Gold.

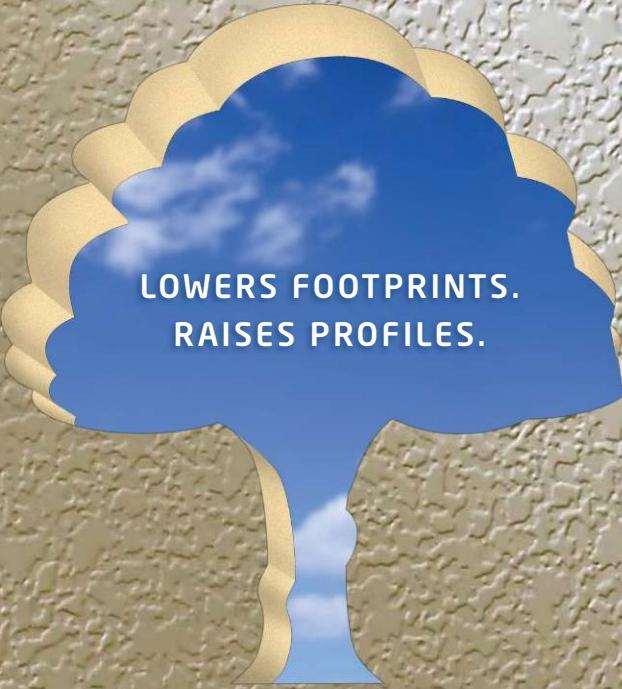
Trompe l'Oeil to Go

Perkins+Will's Toronto office found that for its Engineering V building at the University of Waterloo in Ontario, Canada, the kind of repetition that would have been fatal at Toren made perfect sense. The trick was making the grid interesting. Andrew Frontini, the Perkins+Will Toronto office principal who was the lead designer on the project, turned to white ceramic frit to give the building's elevation a three-dimensional appearance and to conceal the striped effect common to curtainwall-clad offices.

The coating is silk-screened onto the vision and spandrel glass in dot patterns of three different densities, arranged to create the illusion that the building's exterior is studded with shallow pyramids. The lightest in appearance is a 75 percent dot pattern; medium is 35 percent; and the most transparent portion of the vision glass is 5 percent. "It's really a tromp l'oeil," he says. During the day, areas of vision glass, which have the least amount of frit, appear to be dark. But, as twilight comes, the frit is backlit in rooms where lights are on, gradually revealing those interior spaces.

Applying frit to glass can be expensive, Frontini says. "But if you minimize the number of printing screens, you can do a fritted job at a very modest cost premium." In this case, limiting the number of screens to three helped, but the expense was further offset by efficiencies in prefabrication of the curtainwall system. The fabricator insisted on extremely large unitized panels completely assembled at the factory.

Each of the unitized panels spans from floor to floor and roughly measures 14 feet tall by 9 feet 8 inches wide. The large unitized panel is made up of two smaller units of insulated vision glass and two smaller units of



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Perkins+Will's Engineering V building at the University of Waterloo embraces the grid for its curtainwall, unlike Toren, but gives it the illusion of depth: A white ceramic frit is silk-screened onto the glass in dot patterns of different densities, to create the illusion that the exterior is studded with shallow pyramids.



insulated spandrel glass. Three panels installed side by side cover one column bay. "We were really at the limits of what the manufacturer could do in terms of size," Frontini says. Preassembling the large panels and then trucking them to the site allowed for faster installation (and therefore less on-site labor); better quality control, with fewer dimensional adjustments in the field; and the ability to work indoors—a plus in the Canadian climate. "Once they started installing them, the building was enclosed very quickly," Frontini says.

From the exterior of the building, several 10-inch-high horizontal strips can be seen dividing the façade. Each houses a 4-inch-diameter, cylinder-shaped vent that occupants can rotate by hand to allow fresh air into the building. These are located at the top of each windowsill. The vents are a standard detail developed by the curtainwall manufacturer and installed into the unitized panel during fabrication. They even come with built-in insect screens.

Frontini says that his quantity surveyor's cost estimate for the curtainwall, which was fabricated locally, came in at CAD \$65 per square foot. He believes that, because fabricators are not as busy in the current economic climate, the cost would likely be even less today.

Behind the Polycarbonate Curtain

The Land Port of Entry at Massena, N.Y., is a gateway for trucks and automobiles coming in from Canada. Like all

government buildings, port of entry facilities must meet extremely high safety and security standards, while ideally maintaining a sense of transparency. Smith-Miller + Hawkinson Architects used curtainwall glazed with insulated cellular thermoplastic polycarbonate panels to enable them to reconcile two requirements seemingly at odds with each other: lightness and explosion resistance.

Normally, one might use ballistics-resistant glass. But it is extremely expensive, particularly when fabricated in insulating glass units. "One of the requirements was that if an explosive device was set off in front of the curtainwall, our structure would meet their [the General Services Administration's] progressive collapse requirements," says Laurie Hawkinson, the partner in charge of this project. "You can imagine when you start running the numbers on that, the column and grid spacing starts to get really tight."

But the architects were able to get the polycarbonate panels rated for blast resistance, the first time this had been done for a federal facility. While presenting his case to the GSA, Sean A. Gallagher, a senior associate at Smith-Miller + Hawkinson, became an expert on the material's performance properties, from yellow indexing to melting points. Lower cost, resistance to explosions, and insulating value were all points in polycarbonate's favor. The difference in cost between



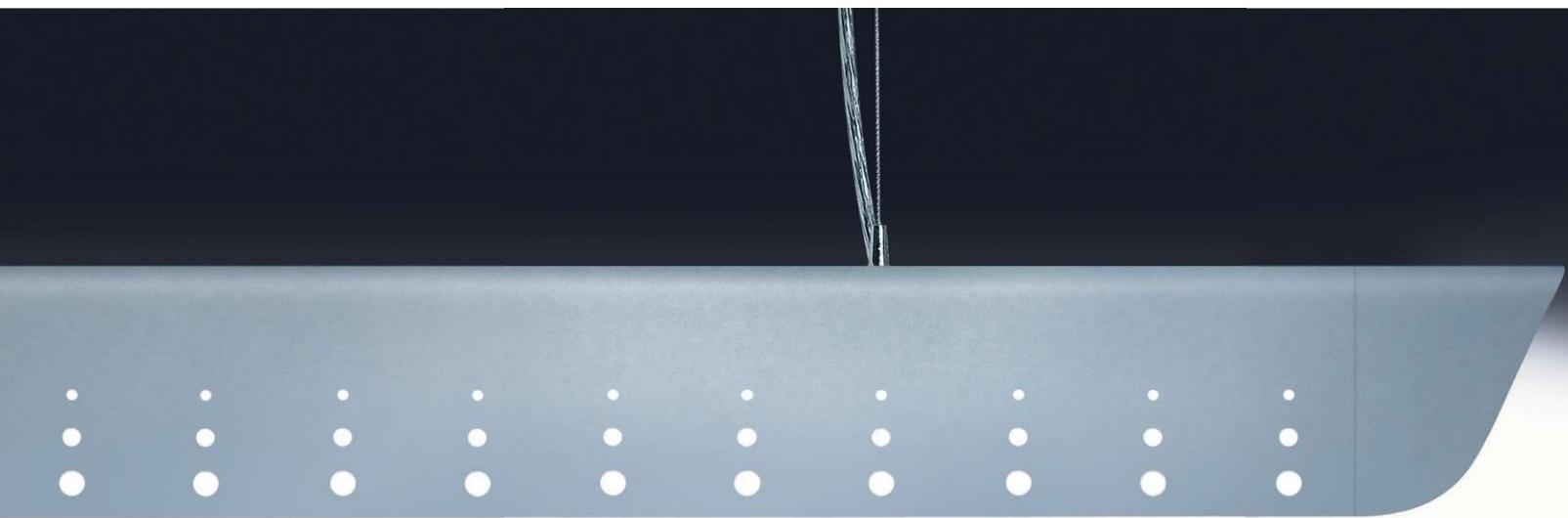
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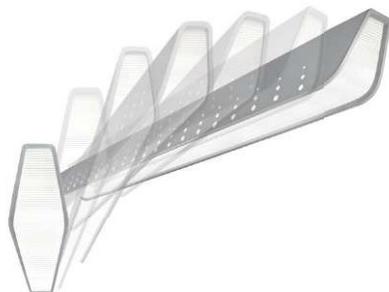
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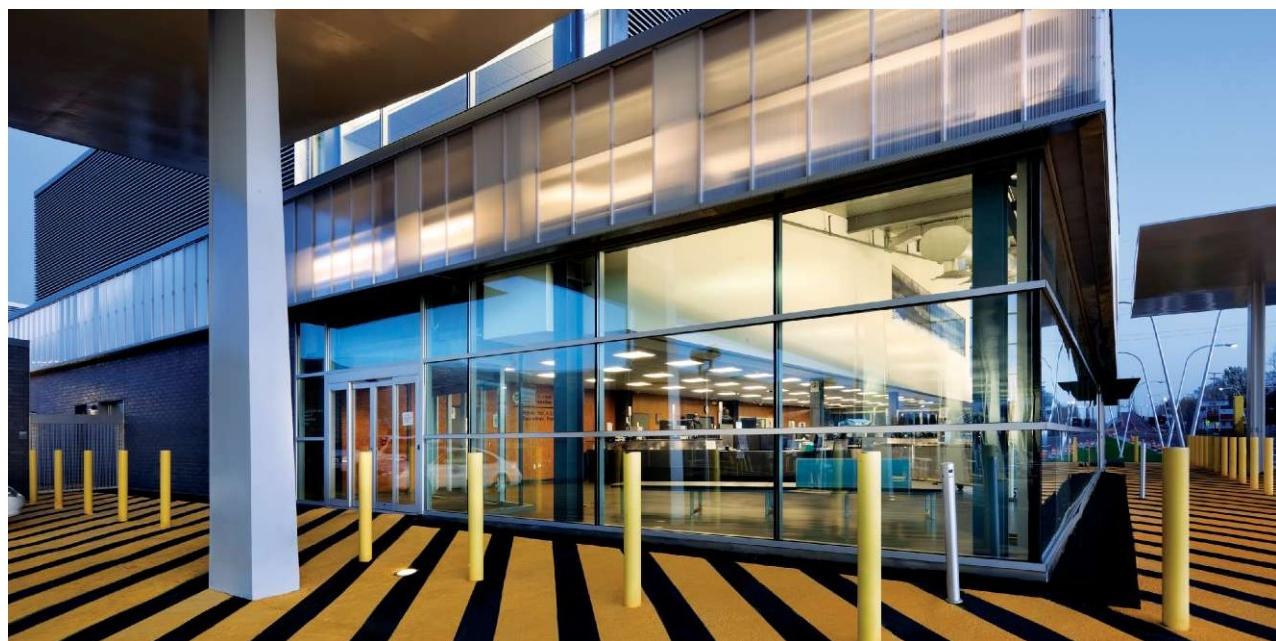


For the U.S. Land Port of Entry in Massena, N.Y., Smith-Miller + Hawkinson had to meet stringent blast-resistance requirements. The designers came up with an unexpected solution: polycarbonate panels, which cost less than ballistic-rated insulating glass units, have a high insulating value, and harvest daylight for the federal facility.



**THE CLIENT
“DIDN’T EVEN
HAVE DAYLIGHT
ON THEIR RADAR.
BUT THEY WERE
VERY PLEASED
THAT WE FOUND
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COULD WORK
FOR THEM IN
TERMS OF COST
AND SECURITY.”**

—LAURIE HAWKINSON



polycarbonate and ballistic-rated IGUs is “extreme,” Gallagher says—perhaps \$40 per square foot versus \$350. Once the blast rating was secured, they were able to meet the glazing budget for the building without compromising the need for daylight.

All of the LEED Silver-rated Massena port of entry’s four buildings use the panels to harvest daylight and to gain a luminous appearance at night. Hawkinson says that, initially, the client “didn’t even have daylight on their radar. But they were very pleased that we found a material that could work for them in terms of cost and security.”

The panels are 2 feet wide and some are as tall as 24 feet 8 inches once installed. Typically, these panels are anchored to 2-inch-by-10-inch horizontal steel girts that are spaced 5 feet apart vertically; the girts are welded to columns spaced 15 to 28 feet apart, depending on blast requirements. All of the vertical joints of the panels are

backed up by additional steel tubes, and fastened to each other using an exterior batten system of plastic locking strips. These prevent even wind-driven rain from infiltrating the building.

A 25mm-thick cellular thermoplastic panel that is 38 percent light transmissive can achieve an R-value of nearly 2.70, making it competitive with double-paned glass assembled with low-E film. Energy modeling enabled the architects to balance the beneficial effects of daylight through the panels against heat loss. This allowed them to optimize the proportion of higher R-value, less-light-transmissive panels against thinner, lighter panels. The buildings, finished in 2009, use a mixture of both.

Gallagher adds that the modeling program was also extremely helpful in optimizing the geometry of the



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Poorly performing curtainwall may be on the way out. Codes are moving toward higher average U-values for wall assemblies.



sloped roofs of each structure and their orientation. "On the administration building for passenger cars, the largest areas of poly are on the north side of the building, and cover the upper portion of the building. The south side has less, to minimize heat gain." The polycarbonate system was off the shelf, and the aluminum framing system for the polycarbonate sheeting was not custom-designed for the job. However, the clear corner assembly was designed with the fabricator for Massena specifically.

And at the administration building, unlike some of the more utilitarian truck-inspection buildings, polycarbonate is not the only thing standing between occupants and the weather. In some areas of the building, separate walls of ballistic CMU, as well as glass clerestories, stand behind the polycarbonate, increasing the U-value of the wall assembly considerably.

For polycarbonate's skeptics, Gallagher notes that the material does not change color the way it used to. "The new polycarbonate will not smoke, yellow, or cloud over," he says. Installed, the cost for the system was about \$38 per square foot, according to Smith-Miller + Hawkinson's cost estimators. The complex came in \$4 million under budget.

What's Behind the Next Curtainwall?

It is likely that in the near future, changes in energy codes will alter curtainwall designs more significantly

that any aesthetic trend architects can come up with. Up until now, many developers, and some owners, have let the higher first costs associated with better thermal performance deter them, choosing instead cheap, poorly performing wall systems, despite the fact that better envelope performance would permit them to drastically downsize their mechanical systems.

But poorly performing curtainwall may be on the way out. Codes are moving toward higher average U-values for wall assemblies, and the proportion of glass to opaque materials will likely be limited one day. That may make buildings that look like grid-paper-in-glass much more unusual than buildings like Toren.

Even Dubai, United Arab Emirates, recently announced that it had revised its building code to limit the amount of permissible window area to 60 percent. The change will take effect in 2014. If the idea of limiting the amount of glass in walls catches on, architects will have some new variables to help them justify more creative geometries as well as systems that perform better.

SOM partner Roger Duffy, FAIA, Toren's designer, sums up the delicate balance. "In the design of curtainwalls, lots of variables must be balanced relative to a set of objectives: energy conservation, comfort, formal qualities, cost. This is both a science and an art, as unique contexts and programs create the potential for envelope solutions tuned to a responsive design idea." □

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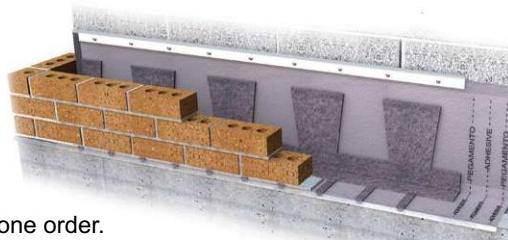


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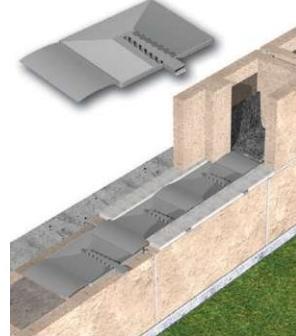


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QUIZ

1. Which two innovations mentioned in the article have led to increased use of curtainwalls?

- a. Spandrel glass
- b. Structural silicon
- c. Glazings
- d. 3D modeling programs

2. According to the article, the developers of Toren, a residential tower in Brooklyn, N.Y., used what technique to distract the observer's eyes from the vertical lines?

- a. Exterior facade lighting
- b. Multicolored aluminum panels
- c. Three different glazing patterns
- d. Jogging vertical bands left and right

3. The Toren design team used which online resource to help select where windows should be located to optimize view corridors for the building site?

- a. Satellite View
- b. MapQuest Aerial
- c. Google Earth
- d. Flash Earth

4. Why is curtainwall generally favored for large-scale designs?

- a. It is economical.
- b. It is easy to specify.
- c. It is unique.
- d. It is easy to differentiate from adjacent buildings.

5. The Engineering V building at the University of Waterloo appears to have three-dimensional texture, even though its facade is curtainwall. How was this achieved?

- a. By using colored spandrel and vision glass.
- b. By silk-screening different dot patterns onto the vision and spandrel glass.
- c. By using alternating sizes of glazed spandrel glass.

6. True or False: In the Engineering V building, the vision glass is transparent during the day, but as twilight comes the frit makes the windows appear darker, adding privacy to lit rooms at night.

7. The design team for the Land Port at Massena, N.Y., paired curtainwall with what material to meet security requirements while maintaining transparency?

- a. Insulated ballistics-resistant glass
- b. Tempered glass
- c. Insulated cellular thermoplastic polycarbonate panels

8. True or False: The design team for the Land Port of Entry at Massena used energy modeling to balance the beneficial effects of daylight through the panels against heat loss.

9. True or False: According to the article, building codes are moving toward higher average U-values for wall assemblies, and the proportion of glass to opaque material will likely be limited one day.

10. Changes to building codes are taking place. Which location has recently announced that it will begin to limit window area to 60 percent starting in 2014?

- a. Dubai, United Arab Emirates
- b. France
- c. England
- d. The U.S.



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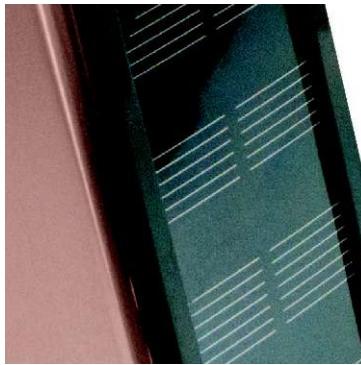
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Architectural Area Lighting has expanded its outdoor lighting Designer SSL series with the additions of the **Promenade** (shown) and **Flex** series. Promenade is a traditional LED luminaire, and available in three styles and several mounting options. Flex, also an LED fixture, is a more contemporary design and is available in single, twin, triple, or quad pole-mounted options. Fixtures are available with a zero-to-10V dimmable driver. • aal.net • Circle 120

KnollTextiles has introduced **Ink**, a series of wallcoverings designed by **Abbott Miller**—a partner at Pentagram. The collection is inspired by Miller's experiments with the movement of a drop of ink across paper; the resulting patterns—Drip, Drop, and Run—are the digital translations of those trials. Available in multiple colorways, the collection is printed on Recore, a vinyl wallcovering made with 30% recycled content. • knolltextiles.com • Circle 123

The **Color By Numbers** collection from **Crossville** features 16 neutral and saturated tiles (designed to coordinate with the company's existing Color Blox collection) and 16 Aura paint colors from Benjamin Moore. All tile colors contain 15% pre-consumer recycled content. Wall tile is available in glazed gloss and satin finishes in 4" by 8", 8" by 8", and 4" by 12", plus a 4" by 8" cove base corner, 2" by 8" single bullnose, 2" by 2" single bullnose corner, and a 1/2" by 12" listello. • crossvilleinc.com • Circle 121

CertainTeed Corp. has introduced **Solar Wedge Lights**, which can be mounted to any fence or railing post. The solar-powered lights, available in white, black, copper, and stainless finishes, are powered by two onboard rechargeable batteries and use three bright LED fixtures as the light source; no wiring is required for installation. Solar Wedge Lights cast a beam of light more than 15' long. • certainteed.com • Circle 124

Palmer Tables from **Cumberland Furniture** are designed by Yohandel Ruiz, an associate in RTKL Associates' Miami office, and are the latest in the furniture company's Designers Speak series. The tables' repeating elements create a mirror effect. A maple veneer is standard, and 1/2"-thick solid surface or 1/4"-thick painted glass are also available. Side tables are available in two sizes, coffee tables in four sizes, and console tables in one. • cumberlandfurniture.com • Circle 122

The **Crimson Rocker**, designed by **Valera Velev**, is an upcycled rocker that is part of his Fizz line of paintings and art furniture. The salvaged chair is composed of wood and armature wire that serves as a base, which is then coated with a thick layer of expanding foam and colorful paint, the unpredictable nature of which ensures that each chair will have a unique finish. • behance.net/valvelev • Circle 125

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Tubelite offers **Therml-Block** door products with thermal barriers that are manufactured using EcoLuminum, a high-recycled-content aluminum billet composition. The door and frame use an I-shaped thermal strut reinforced with 25% nylon fiber. Doors are available with a 4" medium stile and 5" wide stile. The thermally broken construction allows for different finishes on the interior and exterior surfaces to match color schemes. • tubeliteinc.com • Circle 127

The **glass mosaic tile** collection from **Onix** encompasses seven series: iridium, ice, crystal, classy, glam, geo, and moon. The glass is made from a combination of melting sand, sodium oxide, and limestone. Tile sizes include 1.2cm square, 2.5cm by 5cm, 5cm square, 2.3cm square, and 2cm square. All sizes come mounted on 12"-square sheets of mesh backing. • onixmosaic.com • Circle 128

Designed by Niels Bendtsen, the **Tokyo Chair**, manufactured by **Poliform**, is influenced by contemporary Japanese design and architecture and Scandinavian archetypes. The structure, made from natural or spessart oak, is available in 30 lacquer colors. Seat finish options include 33 fabrics, five leathers, and two eco-leathers. • poliform.it • Circle 129

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Outdoor fireplaces from **ModFire**, designed by Brandon Williams, are handcrafted out of 14-gauge steel; a vented, dual-wall construction contains the fire while keeping the outer skin cool. Finish options include natural, unfinished steel, or glossy high-temp paint in deep red, blue, or orange. The natural steel Modfire comes standard as a wood-burning unit with an optional gas-burning upgrade. The painted units come standard with the gas burner. Units are 48" tall and 22" wide. • modfire.com • Circle 131

Meteo Lighting's Meteor Solar LED bollards incorporate LiFePO₄ batteries to help maximize the lighting period. Using Cree LEDs and the batteries, the bollards can stay lit for up to 12 hours after only four hours of charging from direct sunlight to solar panels mounted on top of the bollard. The bollards have a fluorocarbon finish to stand up to harsh environmental conditions. • meteor-lighting.com • Circle 132

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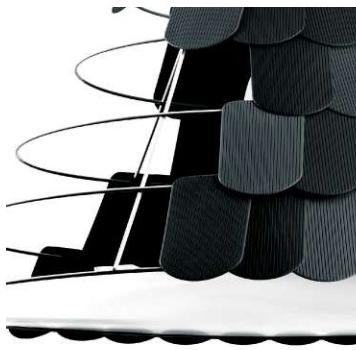
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Roofer by Benjamin Hubert for Fabbian is a collection of pendant lamps covered in silicone tiles and inspired by roof tiles in Marrakesh, Morocco. The design comprises a series of wire frames over which modular grooved components in graduated colors are hung. The flexible silicon-polymer construction of the tile allows the module to be formed around a compound curvature framework as well as allowing some light through the structure. Three models and colors are available. • fabbian.com • Circle 136

Armstrong Ceilings has expanded its Infusions line of accent products by adding **Infusions Partitions**, 2'-by-6' partition panels manufactured with a minimum of 40% recycled resin. Six gold-tone patterns and seven solid colors are available. The panels are 1/4" thick and can be hung individually or linked together in multiple panel applications. • armstrong.com • Circle 137

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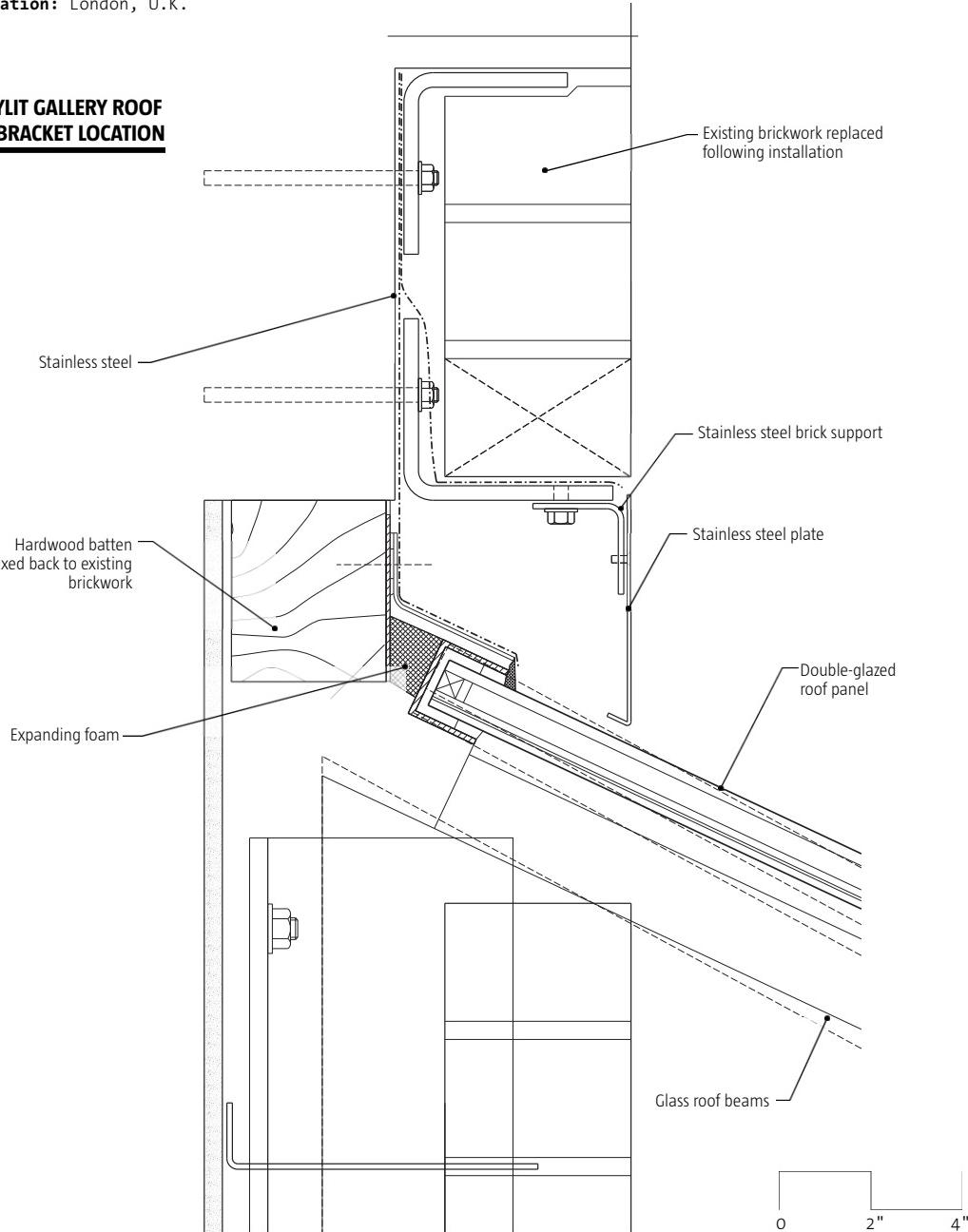
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TEXT BY RAB MCCLURE

Architect: MUMA
Location: London, U.K.

DAYLIT GALLERY ROOF AT BRACKET LOCATION



73

The number of triple-laminated glass beams supporting the double-glazed glass panels composing the ceiling of the Daylit Gallery

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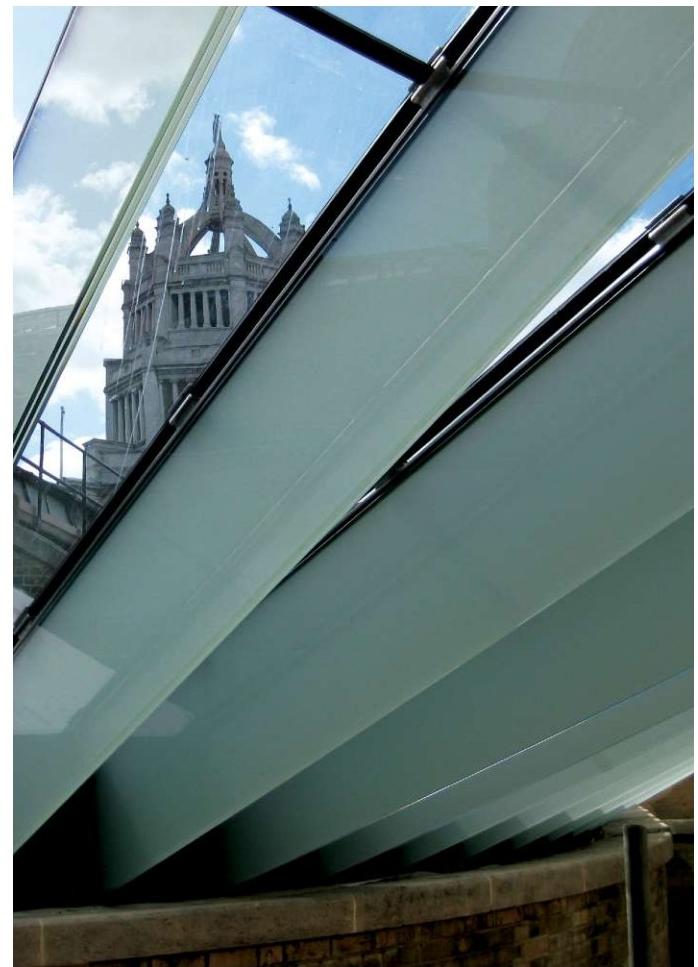
technology



WHEN THE VICTORIA AND ALBERT MUSEUM held an international competition seeking display strategies for its world-renowned Medieval & Renaissance Collection, London-based MUMA answered with a different proposal altogether. "The competition brief asked for display ideas, not what we proposed," explains MUMA partner Stuart McKnight. "The competition format allowed us to risk mentioning the unmentionable."

The strategy paid off: MUMA got the job. MUMA designed the museum's new Daylit Gallery to connect the previously segregated Medieval and Renaissance galleries under one roof—specifically, a glass ceiling composed of translucent glass beams, some more than 30 feet in length, supporting glass panels to form an undulating roof. By removing existing stairs and installing the roof over interstitial spaces between the existing suite of medieval galleries, MUMA created a new public space for the museum, which is a Grade 1 listed historic building, meaning that it could not be altered without special planning permission.

Along the gallery's edges, sunlight renders the historic façades in crisp highlight and shadow. The pitch of the heat-strengthened, laminated beams—which varies from 20 to 40 degrees—and the rhythm provided by the roughly 30-inch spacing between them gives the impression of a softly glowing, wavelike ceiling overhead.



ALAN WILLIAMS PHOTOGRAPHY

The depths of the glass beams range from between 17 and 21 inches.



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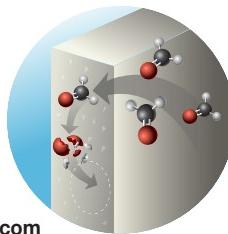


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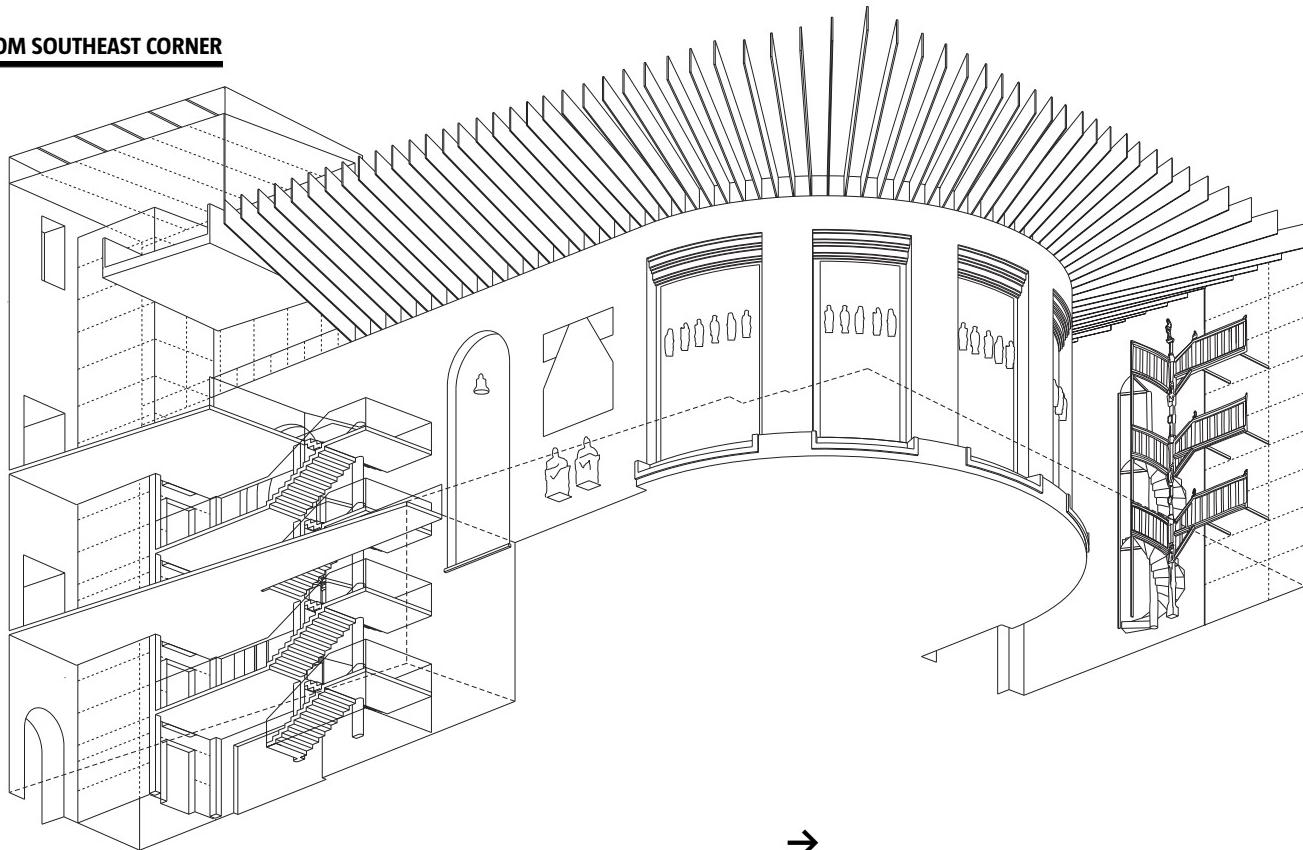
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Along one edge, the glass beams sail cleanly over the semicircular parapet of the adjacent East Hall apse; opposite, they slice into the brick-and-stone façades of the Perimeter Galleries. By stitching together six floors of galleries into a coherent exhibit sequence, MUMA provided wheelchair access and daylight where none existed previously.

To realize the glass roof, in particular along the corner radial sections, MUMA considered heat-bending the double-glazed, insulated glass panels. Dewhurst MacFarlane and Octatube, the engineers for the ceiling's "hypar surface," discovered that the glass panels would remain flat along their edges, curving across the center only—allowing the engineers to cold-bend them.

"We began drawing straight lines across the space—connecting points along a bottom horizontal on one side with a top horizontal on the other," said McKnight. "We discovered a natural rippling that occurred as the lengths and angles varied."

Each glass beam is supported by a steel bracket concealed within the masonry wall. Strategically, MUMA's detail provided a way for masons to conceal the brackets and work beneath the line of the installed glass roof.

By distinguishing its thin, light, elegant material palette from the existing masonry, MUMA's detailing helped win project approval from English Heritage. Prior to the successful bid, MUMA created full-scale mock-ups to test the project's feasibility, in particular the ability to meet the manufacturer's warranty criteria for the cold-formed, twisted, double-glazed roof units.





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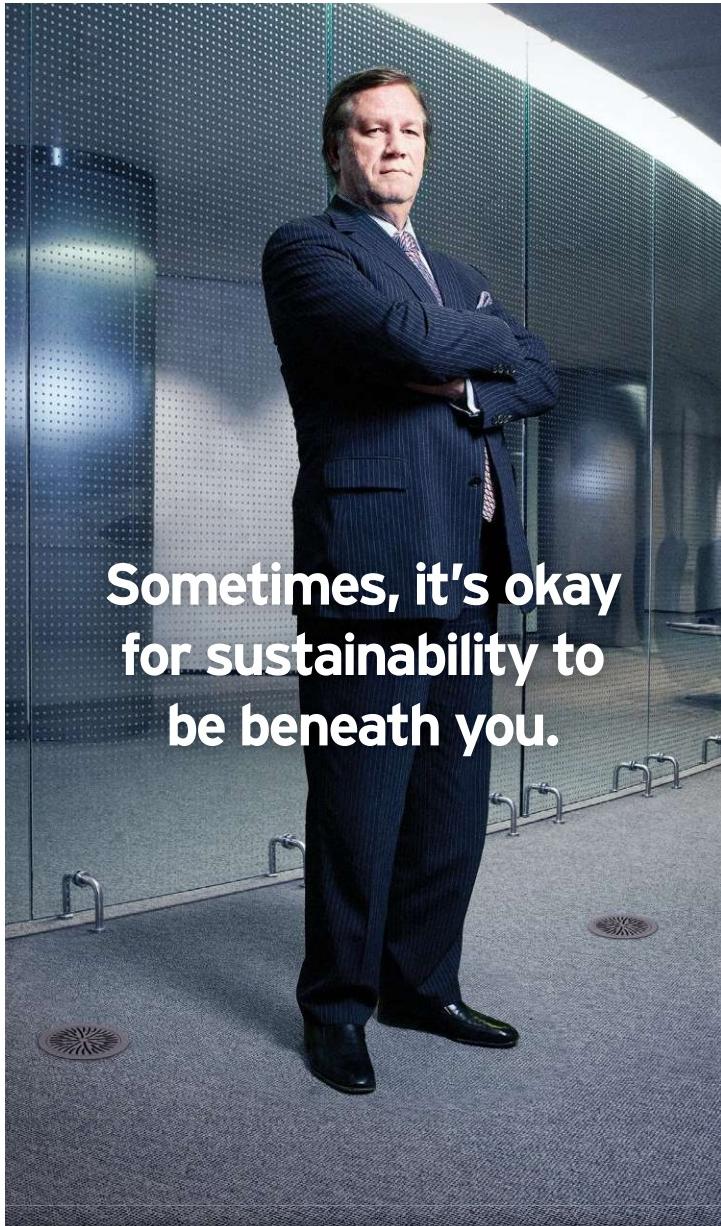
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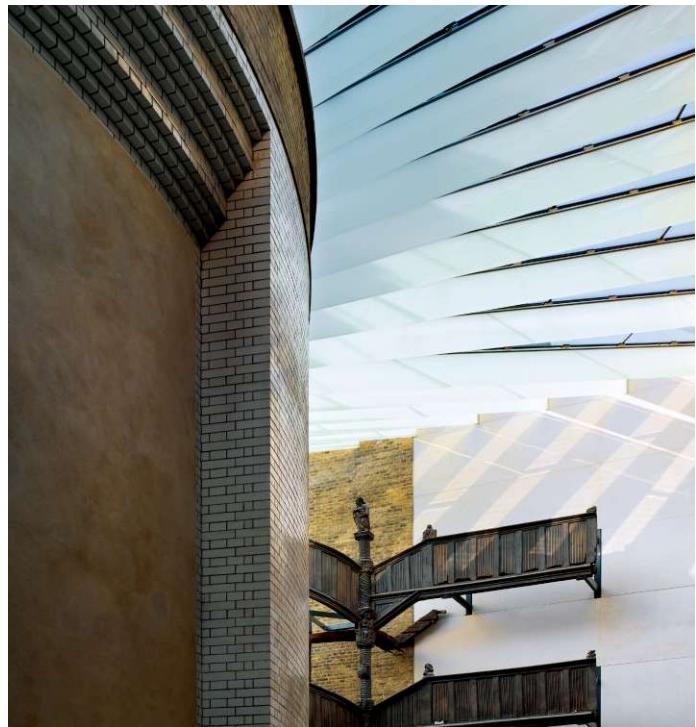
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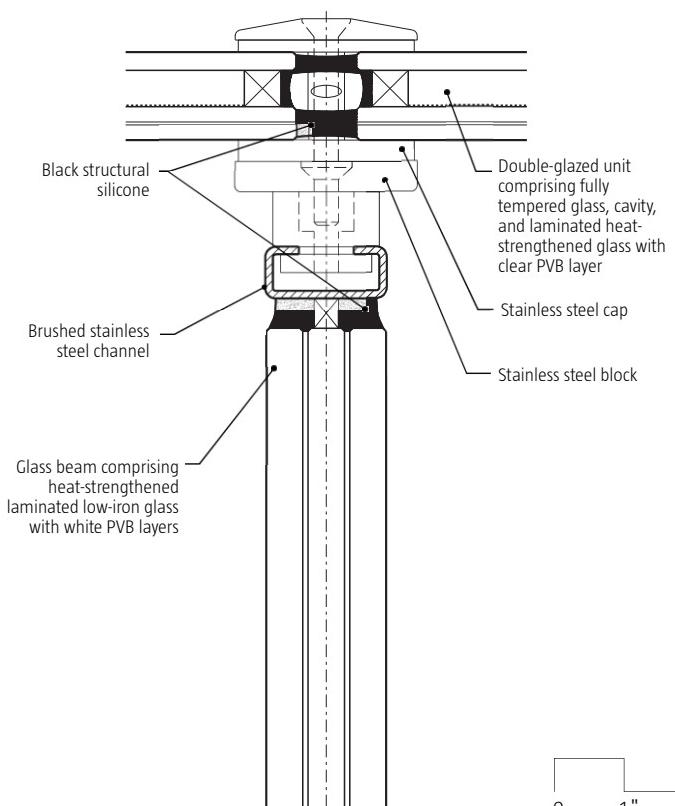
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ALAN WILLIAMS PHOTOGRAPHY

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→ MIND & MATTER

Hardcore Plastic

AN EXOTIC NEW MATERIAL COMBINES THE LOW COST OF PLASTIC WITH THE RESILIENCE OF METAL—AND COULD REPLACE BOTH IN MANY APPLICATIONS.



THE LOW COST AND DURABILITY of plastic has made it a popular choice for disposable materials. Plastic's ability to be easily molded into complex shapes has also been a critical factor to its success. Plastic does not withstand impact fracture well, however, so its structural capabilities are limited. For applications that require greater resilience, metal is usually the preferred choice—but the trade-off comes in the energy- and time-intensive processes necessary to realize complex metal shapes.

Researchers from Yale University, in collaboration with Liquidmetal Technologies, have recently squared the circle: They have developed a metallic material that can be fabricated like plastic.

Bulk metallic glass (BMG) is one of the latest variants of a family of materials called amorphous metals. These glassy metals exemplify the term "mutant materials": substances that transcend categorical boundaries. Unlike

most metals, whose crystalline structure and high melting temperature necessitate complex fabrication, BMG has a structure made of randomly arranged atoms and exhibits a low rate of cooling. These traits allow the material to be injection-molded as easily and cheaply as plastic.

First developed at the California Institute of Technology (Caltech) in 1960, amorphous metals combine some of the mechanical and aesthetic traits of metals with the forming simplicity of glass—allowing the direct manufacture of products by rapid cooling from a liquid state.

The material developed by the Yale team is noteworthy for its ability to mimic the malleability and low critical temperature of plastic, allowing components to be blow-molded quickly. Thus far, Yale scientist Jan Schroers and company have fabricated experimental BMG perfume bottles, biomedical implants, watch cases, and other products in order to demonstrate the method's precision. Their success suggests that it may eventually find its way into larger-scale products.

Replacing one material with another raises important questions. Plastic lacks a stellar environmental track record due to its derivation from petroleum; metal is energy-intensive and, like plastic, requires environmentally disruptive harvesting.

Although BMG demands minimal processing energy when molded, the raw material still exhibits a high embodied energy. Recycling amorphous metals is possible, but the recycling stream is currently small—just last year, Hitachi Metals developed a process to recover material from energy-efficient electrical transformers that use amorphous metal cores.

Does BMG have the potential to supersede plastic? According to a press release from Yale, "The superior properties of BMGs relative to plastics and typical metals, combined with the ease, economy and precision of blow molding, have the potential to impact society just as much as the development of synthetic plastics and their associated processing methods have in the last century," Schroers says.

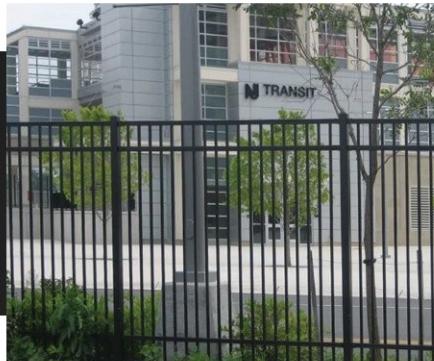
The announcement that Apple acquired the rights to Liquidmetal's amorphous metal alloys last year suggests that this future has already begun. □

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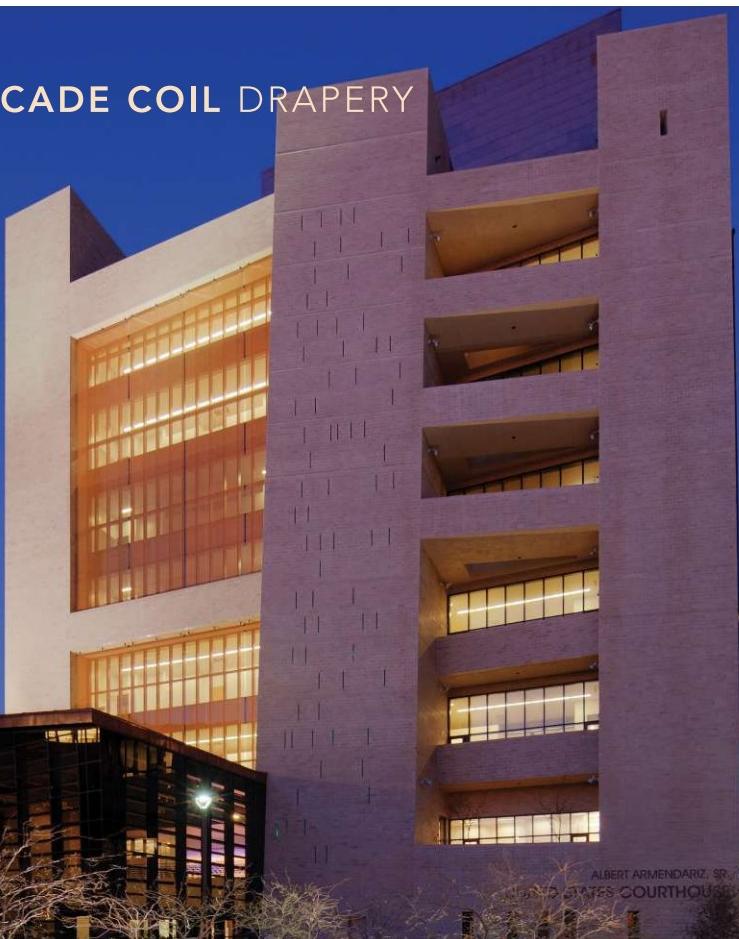
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→ OBJECT

Eero Saarinen's 1957 Executive Chair for Knoll is a midcentury icon. The upholstery fabric on the chair is another Knoll icon, but not as easy to identify by name or designer. (Paul Maute's Cato fabric, ca. 1965, FYI.) The Bard Graduate Center in New York is attempting to remedy the imbalance between fabric and object with **Knoll Textiles, 1945–2010**. The exhibit is billed as the first to address the "under-recognized role of textiles in the history of modern interiors and design." Focuses include the 1945–1965 period, when Florence Knoll helmed the influential Knoll Planning Unit and pioneered modern office planning—using color and texture as primary design elements—as well as the later part of the century, when Knoll collaborated with architect Robert Venturi, FAIA, among others. May 18–July 31. • bgc.bard.edu

culture



→TOUR

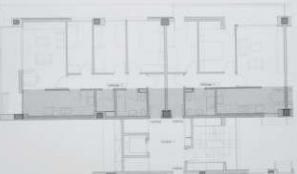
Columbus, Ind., is a top destination for modern architecture buffs, thanks to J. Irwin Miller's patronage of I.M. Pei, Robert A.M. Stern, FAIA, Harry Weese, and other postwar masters. Starting this month, archi-tourists can add one more site in Columbus to their itineraries: the house that Miller, the Cummins Engine Co. CEO, and his wife, Xenia Simons, built for themselves in 1958. A collaboration between Dan Kiley (landscape), Alexander Girard (interiors), and Eero Saarinen (architecture), the **Miller House** is now open for tours and in the care of the Indianapolis Museum of Art. • imamuseum.org/millerhouse



→EXHIBIT

Some 60 years after the Lego Group toy company began producing its "Automatic Binding Bricks," the little plastic connectable blocks may still stand as the best toys ever. For the exhibition **Lego Architecture: Towering Ambition** at the National Building Museum in Washington, D.C., Adam Reed Tucker has painstakingly reconstructed 15 world-famous buildings, including Santiago Calatrava's unbuilt Chicago Spire and SOM's Burj Khalifa (shown, at 17½ feet), in LEGO form. Tucker is one of just 11 LEGO Certified Professional builders worldwide. Since when is professional accreditation required to play with toys? Through Sept. 5. • nbm.org





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→BOOK

You know that green architecture has grown up when it gets a full-blown survey. In **The Sourcebook of Contemporary Architecture**, you'll find photographs and drawings of 70 small and large sustainable projects, including a California beach house, New York's High Line, and future plans for Zira Island, Azerbaijan. Editor Sergi Costa Duran takes all kinds of eco-strategies under consideration, from passive design to green renovation to off-the-grid constructions. • \$60; Harper Design, March 2011

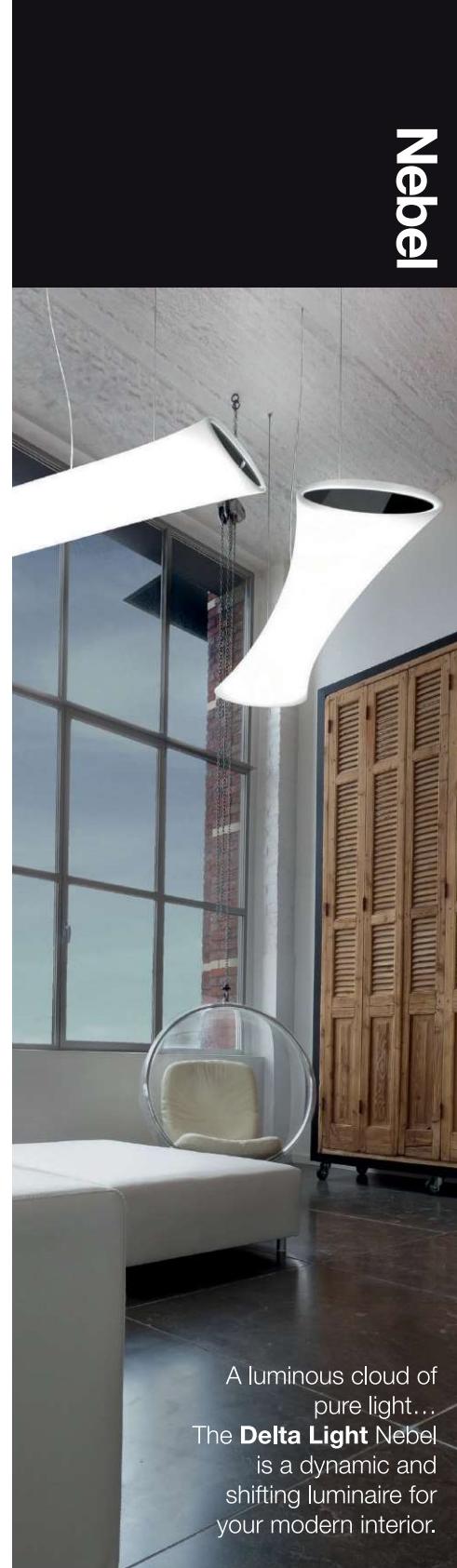


→INSTALLATION

At 25 Cleveland Place, New York, in January, the menu served up iceberg lettuce and arctic char in a Nordic-themed space (shown). At 25 Cleveland Place, in April, there was rabbit and bouillabaisse in a Renoir-themed space. **What Happens When** is an installation by a chef, graphic designer, and interior designer, that changes its food, music, and décor every 30 days. The experiment wraps up in October. • whathappenswhennyc.com

→BOOK

Despite the name, the Design Museum in London's **How to Design** series isn't for DIY enthusiasts. *How to Design a Light* traces lighting evolution from Italian rationalism through the rise of the LED. *How to Design a Chair* includes an in-depth study of Konstantin Grcic's Myto chair as it moves from principle to production. The series extends to guides on houses and typefaces, which won't prepare a reader to design either. But taken together, the four *How to Design* books offer a solid foundation for appreciating the accomplishments of established designers. • \$20 each; Conran Octopus, November 2010



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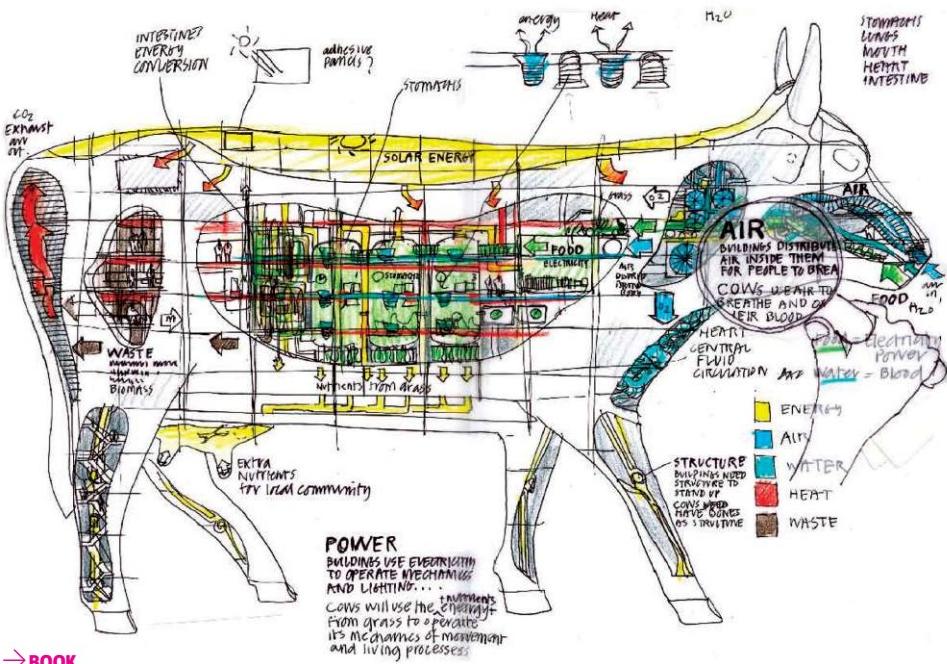
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→BOOK

Even as the hand-drawing traditions that produce them languish, architects' sketches hold an imaginative appeal that BIM models never will. In the foreword to Will Jones' *Architects' Sketchbooks*, Narinder Sagoo of Foster + Partners writes that flipping through them is like eavesdropping on the "creative graphical conversations" of today's best designers. Among the architects featured are Shigeru Ban, Hon. AIA; Will Alsop; Carlos Jiménez; and Sagoo himself, whose drawing "The Cow as a City" appears above. • \$49.95, Metropolis Books, January 2011

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→INTERNET

What is the soundtrack of urban life? Video game and Web producer Eric Eberhardt answers with the **You Are Listening To** series of sites—San Francisco (shown), Los Angeles, New York, Chicago, and Montreal—that reflect the noir realities of life in the city in a thoroughly 21st-century way: Each pairs a continuous audio stream from the local police department's radio feed with electronica from the music-sharing site SoundCloud. If Raymond Chandler, Dashiell Hammett, and other classic "hard-boiled fiction" authors were writing today, they'd surely have one of Eberhardt's sites piping through their laptop speakers. • youarellistening.to



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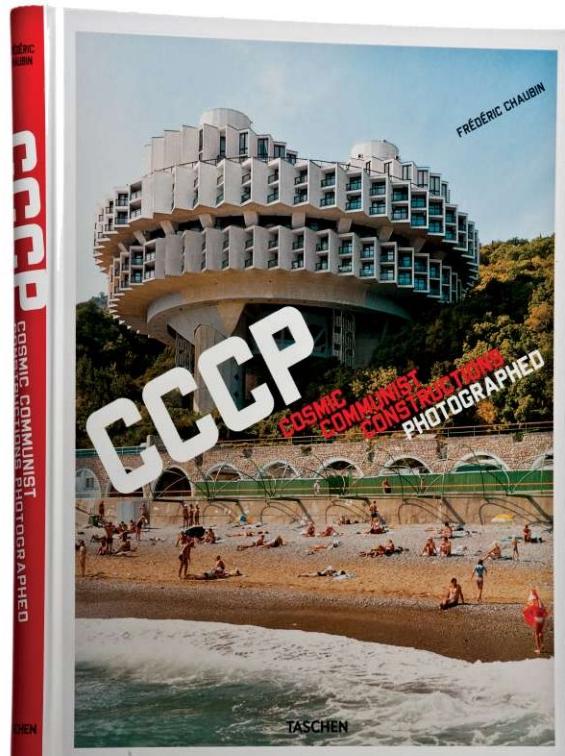
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culture



→BOOK

"My father Julius Shulman grew up with Los Angeles," writes Judy McKee in the forward to **Julius Shulman Los Angeles: The Birth of a Modern Metropolis**. The photographer furthered midcentury Modernism all over the world with his camera (Richard Neutra's 1936 Kun House, is shown), but "Los Angeles was his city," McKee says. Sam Lubell and Douglas Woods present 239 pages of photos that document Shulman's hometown in flux, of farmland and southern California landscapes before development, a predominantly white Compton, workers in factories, and housewives in grocery stores—all through the lens of postwar optimism. • \$60; Rizzoli New York, April 2011



→BOOK

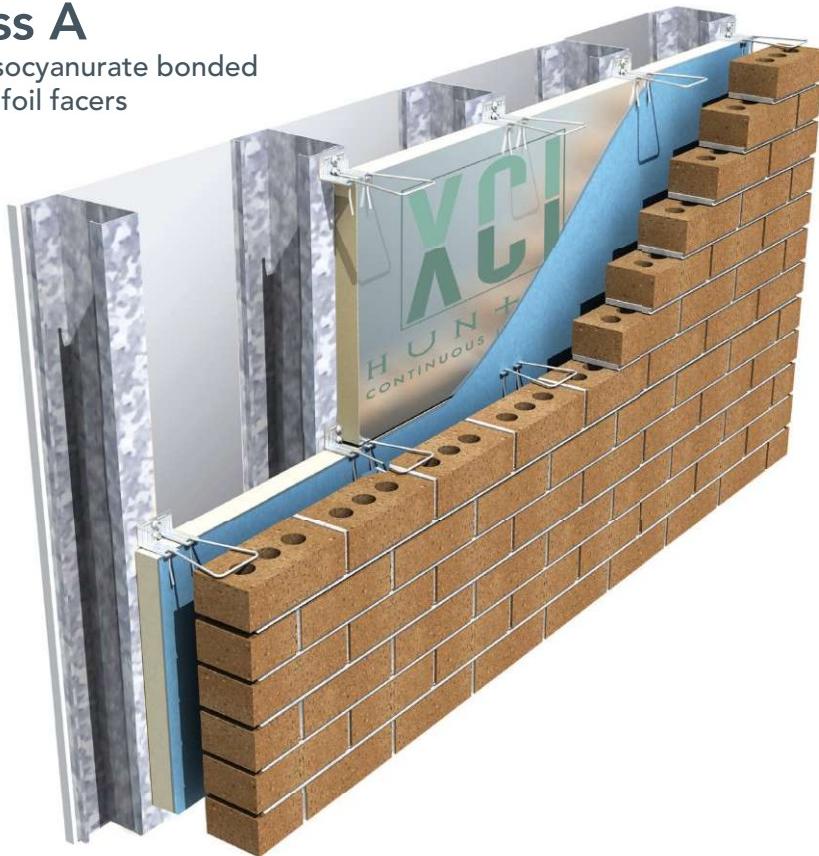
The 90 late-Soviet-era buildings that Frédéric Chaubin surveys for **CCCP: Cosmic Communist Constructions Photographed** don't make a single persistent claim about Soviet architecture from 1970 to the fall of the Berlin Wall. The aesthetic linkage between the flying-saucer-shaped circus in Kazan, Tatarstan, and the stacked-shipping-container look of the Ministry of Highways in Tbilisi, Georgia, is—at best—the severe geometry that persisted even in the absence of a top-down design directive. Late projects from 14 total former Soviet republics speak more to science fiction than Soviet Constructivism. • \$59.99; Taschen, March 2011



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→CRIT

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THEORIES ABOUT SPACE, materials, and aesthetics have long been integral to design education. Design theories developed by academics and innovative practitioners have captured our imagination as teachers, and have long been juxtaposed against the value of learning skills in practice.

How should we best prepare design school graduates for the coming decade? The design professions are undergoing dramatic changes due to globalization, new technology, materials innovation, data-driven management, sustainability, interdisciplinarity, and constrained budgets. We now need more than just theorists or just technicians. According to DesignIntelligence's Jim Cramer, we need design entrepreneurs "who will take us toward

THINKING ABOUT ARCHITECTURE

ANTHONY VIDLER, DEAN, IRWIN S. CHANIN SCHOOL OF ARCHITECTURE, THE COOPER UNION

The idea of architectural theory encompasses many different kinds of knowledge. First, there is the kind that normally counts for theory in the sciences—the hard data and experiential results that are the substance of structural, material, and to a certain extent environmental decisions. Then there are the historical treatises of the discipline, from antiquity to the present, which constitute the received wisdom of the profession and its stylistic, aesthetic, and methodological development over the ages. Finally, there are those texts that, outside the domain of architecture, nevertheless help in framing the nature of practice and its role in society.

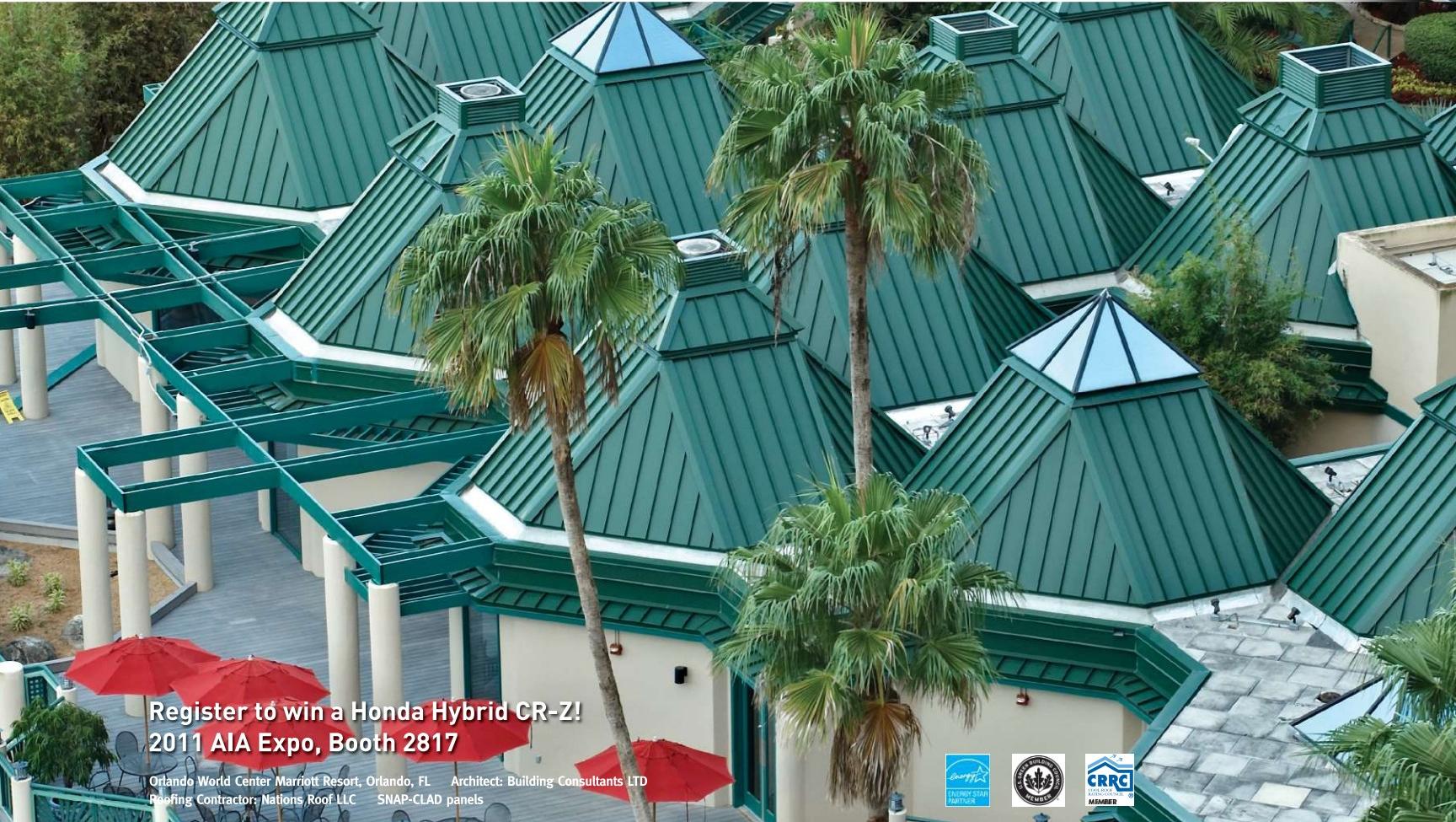
There seems to be little argument that practical wisdom holds a necessary place in the curriculum,

29.4

Percentage of assistant, associate, and full professors in NAAB-accredited architecture programs who are registered to practice in a U.S. jurisdiction.

SOURCE: 2010 REPORT ON ACCREDITATION IN ARCHITECTURE EDUCATION, NATIONAL ARCHITECTURAL ACCREDITING BOARD

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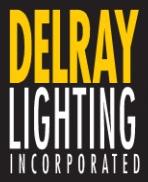
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SEMIOTICS, POSTMODERNISM, AND OTHER THEORIES HAVE RARELY ADDRESSED CLIENTS' SITE-SPECIFIC NEEDS.



new understandings of design as organic science ... professionals ... moving from the majority of design's value perceived as economic investment in objects to a new moral design capitalism that serves society's interests."

Design thinking, or the ability to match human needs to available technical resources within the practical constraints of business, is becoming, according to IDEO's Tim Brown, a dominant approach for design-professionals' success. Design practices are evolving to be more consultative and nimbly networked. Teaching abstract theories alone, in isolation from intense exposure to real clients in empirical, field-based settings, falls short in preparing graduates for the vicissitudes of professional practice.

National accreditors agree that professional designers are accountable primarily for serving the public good and protecting our environment. The National Architectural Accrediting Board (NAAB) sets "educational quality assurance standards to enhance the value, relevance, and effectiveness of the architectural profession," and to verify through external quality reviews that each accredited program substantially meets those standards." The National Council of Architectural Registration Boards licenses graduates of NAAB-accredited schools after they complete practice-based internships, and rigorous tests are combined to assure that newly licensed architects are prepared "to protect the health, safety, and welfare of the public."

Singular, Western-generated theories such as Modernism, Semiotics, Postmodernism, New Urbanism, Deconstructivism, Poststructuralism, or Minimalism have rarely directly addressed diverse clients' site-specific needs. Such theories have also been disconnected from the public accountability and environmental consciousness that derive from actual field experience.

In contrast, pragmatically based design empiricism arises from within the stated needs of the end user. Our best designers learn to craft exquisite objects and spaces through the direct experience of modeling, scaling, making, reflecting, managing, and accepting the consequences of success and failure for real clients.

Fifteen years ago, Ernest Boyer's and Lee Mitgang's Carnegie Foundation–funded *Building Community—A New Future for Architecture Education and Practice* argued for education that taught "building to beautify; building for human needs; building for urban spaces; and preserving the planet ... [and providing] stewardship for the physical environment." The report recommended a diversity of approaches to architectural education, with "greater recognition to professional and civic service—the scholarship of application."

Accreditors, it was recommended, should support the upholding of rigorous educational standards without narrow standardization, focused on the discovery, integration, application, and sharing of knowledge. Academics unified with practitioners would join in teaching the same values: competence, caring, and civic activism.

Professional education would link a flexible, integrated liberal-arts curriculum to pragmatic lifelong learning. Inclusive, open, tolerant curricula would teach theory—but not be dominated

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by theoretical constructs. All schools of architecture would then evaluate themselves as communities of learning.

Over the past decade, socially conscious students and activist faculty have begun to achieve these goals. Students influenced by Hurricane Katrina and the earthquake in Haiti are working in empirical contexts to reverse the degradation of our ecosphere. Cross-disciplinary, student-based initiatives are changing design schools from within, just as economic, managerial, and cultural pressures are changing educational expectations from outside the academy.

Enhanced practice-based initiatives are transforming schools through pro bono work. They are inspired by Public Architecture, the Rural Studio, community design centers, Cameron Sinclair and Architecture for Humanity's global projects, Habitat for Humanity, the Solar Decathlon, and other hands-on learning initiatives often coordinated by digitally networked non-architects. Leading architectural publications have connected with this changing perception of the architect's role by countering the tendency to present glamorous unpopulated images of buildings and interiors as sculptures, and instead showing floor and site plans, and functional spaces designed in collaboration with and occupied by end-users.

What, ultimately, is the case for multidisciplinary, hands-on learning? Empiricism shifts schools' emphasis away from the education of artistic theorists and back toward a view of the architect as a socially conscious and technically proficient master builder. Cognitive and neuroscience studies indicate that experiential learning encodes and reinforces human spatial memory in ways that encourage the learner to pay closer attention to the world around one's self. Evidence-based design models holistic systems of design and project delivery, and meets specific client needs for clear performance-based outcomes, particularly in situations where health, safety, and well-being are concerned.

Practice-based learning enables students and emerging professionals to overcome the technological and cultural failures of modernist design while empathetically meeting specific client needs. Many of these initiatives are linked to outcomes-based learning—for example, "cradle to cradle" assessments of sustainable designs, life-cycle costing, and post-occupancy analysis.

Experiential learning combines functionality with creative delight and is no longer deemed subservient to teaching impenetrable theories. Collaborative, empirical practice today is more than just the latest theory: It is the essence of how both mainstream and innovative architects can best serve their clients and society. □

THINKING ABOUT ARCHITECTURE continued from page 136

and I have not heard many objections to the treatises of architecture being read as a part of the history of the discipline. Indeed, while understanding the historical conditions of architectural practice—its social, political, and formal role in its own time—we can also profitably reread historical texts with respect to contemporary questions. Thus, in a recent course studying the emergence of ecological thought, it became clear to the students that Vitruvius's *Ten Books* constituted far more than fragmentary aesthetic rules cobbled together from Greek sources, but that the body of the work consisted of a wide-ranging study of the design knowledge



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demanded of the Roman architect-engineer, with sustained emphasis on environmental conditions.

Or, in the case of more recent texts—such as John McHale's *The Ecological Context* (1971)—that might well have been written yesterday, students were presented with a truly prescient and scientifically presented concern for diminishing resources and global warming.

Where the debate arises, though, is in the last of these theoretical categories: extra-architectural works that inform rather than drive practice, as increasingly in recent years the texts of anthropologists, philosophers, linguists, cultural critics, and sociologists have been brought into theory courses as a way of introducing students to the study of the social sciences and humanities as it bears upon the study of their profession.

Some of these texts are pointed towards sensitizing students as to how architecture is perceived and utilized from the outside. Theorists from Roland Barthes to Charles Jencks have demonstrated that the meaning of buildings as interpreted by society may not match up with the intentions of the architect. Philosophers such as Michel Foucault are important for understanding that architecture was not "autonomous," but played an integral part in the legal, institutional, and political realm of social order; Gilles Deleuze gives us clues as to how to analyze the topological geometries of forms generated by the new digital programs that privileged surface over section.

Sociologists from Georg Simmel to Jane Jacobs provide insights into the urban condition, and critical historians and geographers from Mike Davis to David Harvey study the terrible social effects of global capitalism. Studies of postcolonial and developing industrial nations demonstrate the importance of sensitivity to cultural and social differences in an increasingly global mode of practice. Equally important have been the insights of Buckminster Fuller and his followers in pointing to the fragility of the environment and the limited resources of "spaceship earth." Meanwhile, in Western schools, a heightened consciousness of gender and ethnic differences has led to attempts—not yet fully successful—to diversify the profession and open it to women and minorities.

These insights from the humanities and from environmental and social studies challenge us to re-examine the commonplaces of an often too-complacent and tradition-bound practice, to develop new and interdisciplinary approaches to design, and to measure its social and environmental consequences. For there are





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WHAT IS NEEDED IS A NEW FORMAL OR AESTHETIC THEORY WITH RESPECT TO THE FORMS ENGENDERED BY DIGITAL ITERATION AND FABRICATION.



few architectural projects that don't have to take some or all of these questions into account in some way or another. Objects placed in the world are given and take on meaning; their spatial organizations are socially experienced as narratives, by subjects of diverse genders and ethnicities, and evoke powerful mental responses, through a vision that is fundamentally constructed by the visual culture of a particular community. Introduction to the study of these topics can then inform the student's design practice, while at the same time open up often unexpected and creative avenues.

Such a contextualization of the discipline, however, does not release the architect from the most fundamental decisions of all: design decisions for the provision of habitable and sustainable space. Here, there is an increasing need for the kind of theory that used to be called "formal," or earlier, "aesthetic," theory, and that has been largely forgotten in the race towards technical skill and "smart design." What is needed is an entirely rethought and substantive examination of the qualities of space, light, proportion, and human occupation, with respect to the forms engendered by new technologies of digital iteration and fabrication.

Even as the architects of the Renaissance tuned the classical tradition to their own specific political and social needs, and the architects of the modern movement transformed this tradition for the new possibilities offered by steel and reinforced concrete construction, so now it is necessary to fine-tune our ability to manipulate and control the emerging geometries of the digital era. In this sense, questions of topology and the characteristics of surfaces, as well as studies in visual perception and spatial recognition, play an important role in the kinds of mathematical wisdom imparted to the architectural student.

Certainly, although professional graduate programs in architecture assume a basis in some of these fields as undergraduate prerequisites, their pertinence for architecture cannot always be registered by students before they start a professional program. For undergraduate professional programs, an introduction to these fields seems essential.

The complexities of an architecture that is now truly interdisciplinary and intraprofessional require the architect to balance the social and economic needs of a community with the costs and implications to the environment, and thus call for a skill in ethical and formal judgment that can only come from a study of humanistic and social thought, and not simply from an expertise in practice, or a design intelligence that is based solely in pragmatically calculated needs. □

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→ LETTER FROM NEW ORLEANS, PART THREE

Sweat the Details

HOT, HUMID CLIMATES REQUIRE THEIR OWN SET OF SUSTAINABLE DESIGN STRATEGIES, ARGUES NEW ORLEANS' SCOTT BERNHARD.

INTERVIEW BY WAYNE CURTIS
PHOTO BY RICK OLIVER

Scott Bernhard, AIA, directs the Tulane City Center, which houses the applied-research and outreach programs of the Tulane University School of Architecture. He recently launched the nonprofit Lime Agency for Sustainable Hot/Humid Design with his wife, Carrie Bernhard.

30

Percentage estimated maximum reduction in energy use of a building that employs natural ventilation.

SOURCE: WHOLE BUILDING DESIGN GUIDE

NEW ORLEANS IS FAMOUS for its heat and humidity, of course. But it's far from singular climate-wise, says the husband-and-wife team of Scott Bernhard, AIA, and Carrie Bernhard.

The Bernhards—Carrie, 40, who trained as an architect, and Scott, 47, who teaches at the Tulane University School of Architecture and directs the Tulane City Center—estimate that some 3.3 billion people live between the latitudes of 40 degrees North and 40 degrees South. (The region between the Tropic of Cancer, which is located about 23 degrees north of the equator, and the Tropic of Capricorn, about 23 degrees south of the equator, is the tropical zone; the areas adjacent to them are considered subtropical, according to the Trewartha climate-classification system.) Faced with robust population growth in these regions, architects working there will be increasingly called upon to design sustainable buildings.

When the Bernhards helped oversee a design competition for New Orleans following Hurricane Katrina, they soon realized that many of those who submitted designs had ideas that were wildly impractical for heat and humidity. So they set about creating a

nonprofit to spread the word. They named it after a fruit often associated with the tropics, and one that suggests the color of fecundity. The Lime Agency for Sustainable Hot/Humid Design is not affiliated with Tulane or any other institution, and is registered as a nonprofit, but is not yet a 501(c)(3) organization.

"I feel like this is an entity that should already have existed," Scott says. "A whole lot of people are looking for this information." The Bernhards are currently preparing a series of downloadable guides about the fundamentals of designing for heat and humidity. ARCHITECT sat down to talk with Scott Bernhard recently about building in these challenging environments.

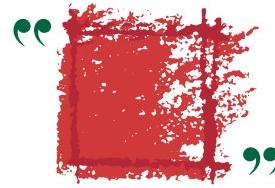
Why did you decide to start the Lime Agency? Was there a specific moment when you realized that architects just didn't get it?

My wife was in charge of [a] single-family home competition [after Katrina], and she and I prepared a booklet about traditional New Orleans house types so competitors could have a sense of what New Orleans



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buildings were about. We stressed how 19th-century buildings kept people cool.

Of course, nobody paid any attention to that. And Carrie was aghast at what was submitted—some of which were very elegant design proposals, but very few of which were good ideas in terms of this climate.

Where do you start in designing for heat and humidity?

Well, it comes down to this whole notion of insulation and operable windows. In the engineer's mind, the ideal structure is entirely sealed, and there's some kind of air lock to enter and exit. This air exchange is predicated on mechanical devices, and you bring in the minimum amount of exterior air, which has to be conditioned.

My wife and I, on the other hand, live in an 1840s building. All the devices that existed in the 19th and early 20th century to cool things are in play—we have tons of windows and they're on different sides, and we can open them in different proportions to create Venturi effects. But the bottom line is, we have a leaky building. So our house is inefficient at mechanical cooling and extremely efficient at passive cooling.

Technology seems to favor the sealed building. And the more we get into this, the more we really realize that, while we think of hot, humid climate resilience as being predicated first on passive means and the logic of building form, the rest of the world thinks of it as a technical issue.

What are some of the elements that architects should pay attention to when designing for the tropics?

Building orientation may be the most obvious. Then, thinking about how the breeze moves, how openings can be configured, how what we call the penumbra of shading works around the building. There's a kind of a core, and if you can keep the core in shade all the time, then you'll never have that sort of driving radiant and convective heat gain. And that penumbra is the attic, and the galleries, balconies, or outdoor spaces.

I lived in the French Quarter for many years. It's close to the river; breezes move through, buildings are masonry, [and] they're almost all surrounded by that penumbra of shading devices. If you live in a party-wall building in the Quarter—which most of them are—50 to 70 percent of your perimeter is entirely sealed by your neighbors, and those two narrow ends are almost entirely operable to pull breezes through.

Density of the kind we have in the French

Quarter produces a kind of cooling effect itself, whereas little houses staked out in the middle of a lot without enough trees around them, I mean, it's miserable.

There's sun and heat, and then there's the humidity here.

Getting water out of the air is very difficult, and water is going to hold the heat indefinitely. That's why it's hot at night here when it's cool at night in California.

The biggest thing we have going for us is to keep the air moving. If we're raising buildings up off the ground for whatever reasons, we definitely want to take advantage of the fact that there's more breeze up there. If we're configuring window openings in the building, we should configure them so that they should be available for breeze.

There should be a ceiling fan in every space, configured just the right way to keep people cool.

What are some of the other issues?

Big walls of glass facing east, west, and south are a problem. Facing the glass south is so much easier to manipulate, and yet when people do face the glass south, they don't manipulate it—they don't put in the overhangs and they don't calculate the sunscreen for it. These are just such simple things, I think.

And of course, if you're trying to cool something passively, a long thin shape makes a lot of sense. If you're trying to cool something mechanically, a sphere or a cube is the ideal figure. They're almost antithetical to one another.

My sense is we have a very short heating season [in New Orleans], and we have months where you can operate passively with little attention paid to it, so I would err on the side of passive cooling.

Yet, we're trying not to make the Lime Agency predicated on my opinion on how these things should go. We're trying to present data, design possibilities, and then the decision is up to the people configuring the building.

Are you finding much research elsewhere on how to work in this sort of environment? That's an odd thing—we spend a lot of time looking for other people doing this research and people who want to collaborate.

If you think about it, though, the financial motivation to develop passive systems is quite low. If it's just a matter of configuring the building, and changing lifestyle a little bit, nobody's making any money off that. □



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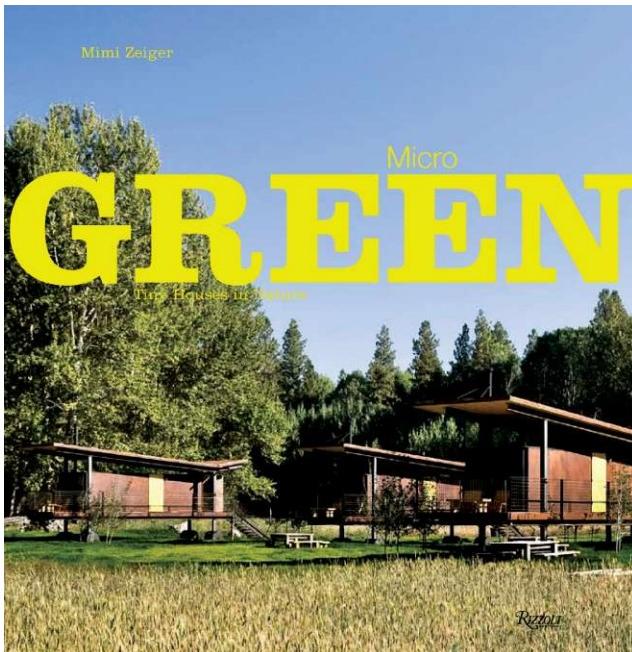


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TEXT BY KRISTON CAPPIS

Sustainability in architecture can take a bewildering number of forms, but ARCHITECT contributing editor **Mimi Zeiger** sets out to show that the personal is sustainable with *Micro Green: Tiny Houses in Nature* (\$29.95, Rizzoli, March 2011). Described by *Details* as an "an anti-McMansion manifesto," Zeiger's book stresses innovation in sustainability at the individual scale. A follow-up to her 2009 book, *Tiny Houses* (\$29.95, Rizzoli)—in which she surveyed home designs of 1,000 square feet or smaller—*Micro Green* reveals how compact living works in a variety of environments as well as how new innovations scale down. Zeiger writes about VisionArc (page 68) and the Ray and Dagmar Dolby Regeneration Medicine Building by Rafael Viñoly Architects (page 228) for this issue.



For the Daly Street Lofts in Los Angeles' Lincoln Heights neighborhood, contributing editor **Joseph Giovannini**, AIA, took an 18,500-square-foot, 1930s garage and transformed the column-free interior into live-work units. Giovannini's wood-stud-and-joist structural system responds to subtle differences in nearly identical bays to yield 15 unique units. Perhaps more significant than the notion of a critic stepping into the role of designer is the fact that Giovannini assumed every role for this experimental project—working as developer, construction supervisor, and even rental agent. In this issue, Giovannini writes about the Guangzhou Opera House by Zaha Hadid Architects (page 216).

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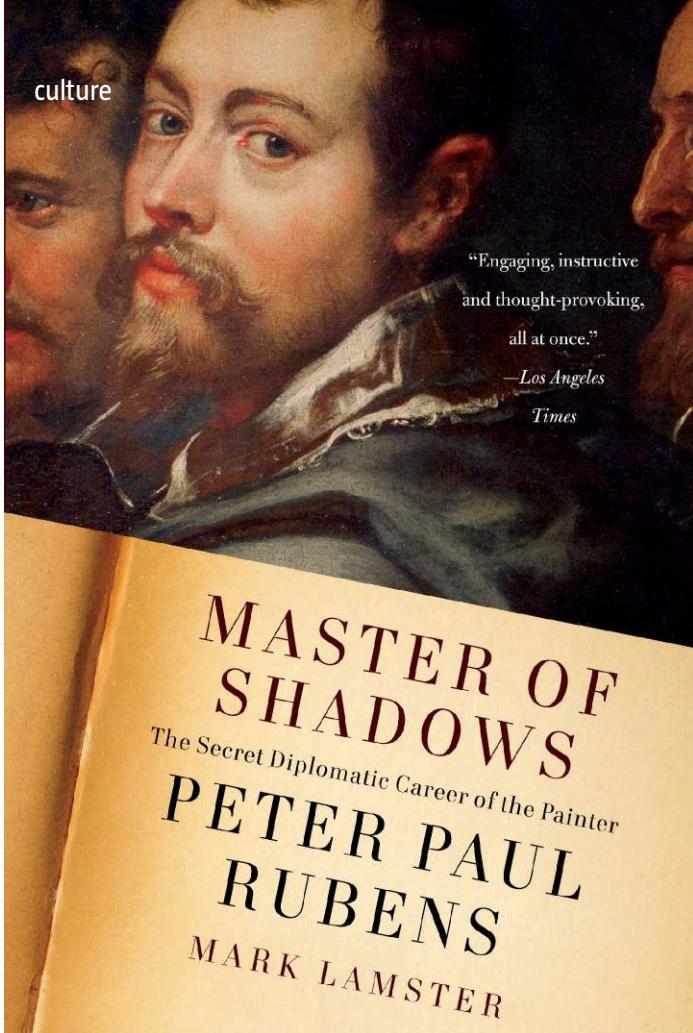
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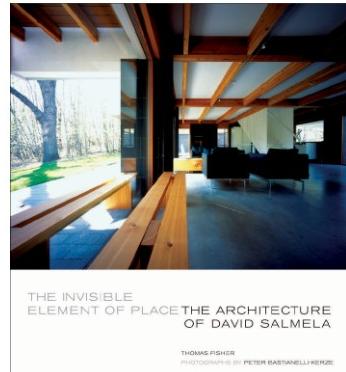
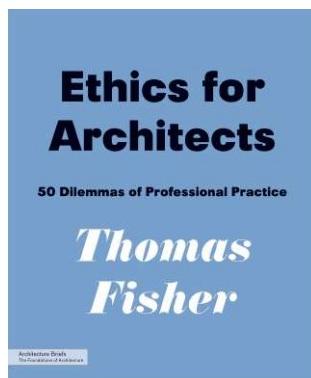
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Mark Lamster's *Master of Shadows: The Secret Diplomatic Career of the Painter Peter Paul Rubens* (\$17, Nan A. Talese/Doubleday, 2009), now out in paperback, follows Rubens' lesser-known career arc as a statesman and spy—talents for which he was arguably better known during his lifetime. Lamster himself is something of a polymath: He's written a book about sporting goods magnate Albert Goodwill Spalding's world tour to promote baseball, and he's currently writing a major biography detailing Philip Johnson's life and career. For this issue, Lamster has profiled Jakob + MacFarlane's Orange Cube in Lyon, France (page 202).



A reader might think that compiling 50 tests of an architect's mettle—from age-old questions all designers face (Can you work with corrupt politicians?) to problems introduced by technology and globalization—would take up a writer's time. But not only has contributing editor **Thomas Fisher**, Assoc. AIA, published *Ethics for Architects: 50 Dilemmas of Professional Practice* (Princeton Architectural Press, October 2010), he's followed up with *The Invisible Element of Place* (University of Minnesota Press, May 2011), a survey of 51 projects by Minnesota residential architect David Salmela, FAIA. Fisher has written this issue's Past Progressives item on the Piazza d'Italia in New Orleans (page 256).

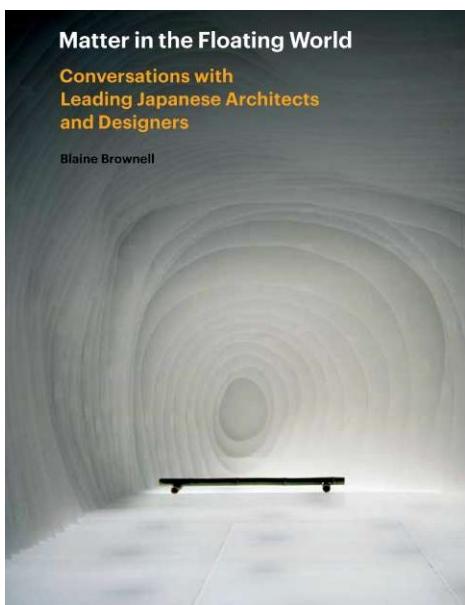
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In Matter in the Floating World: Conversations With Leading Japanese Architects and Designers (Princeton Architectural Press, March 2011), contributing editor **Blaine Brownell**, AIA, tackles the nation whose per capita population of designers may be the highest in the world. In interviews with Shigeru Ban, Hon. AIA; Tadao Ando, Hon. FAIA; Kazuyo Sejima; and others, Brownell approaches Japan with a focus on materials—specifically surveying Japanese architecture in terms of light, atmosphere, flow, and emergence.



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Men at Work

A BIOGRAPHY OF MCKIM, MEAD & WHITE REVEALS THE PROCLIVITIES OF THE ORIGINAL MAD MEN OF AMERICAN ARCHITECTURE.



Stanford White (center, powdered hair) with dandy associates at the James Hazen Hyde Ball in 1905.

THE MEN WHO SET THE TONE for American architecture for almost half a century were queer. Or at least they were what we might today call metrosexual. That's the conclusion you can reach from reading Mosette Broderick's *Triumvirate: McKim, Mead & White* (\$40; Knopf, October 2010). The other conclusion you can come to is that it's all about who you know. While the first realization was, at least to me, a surprise, the latter is an affirmation of the old verity in architecture: It is the built affirmation of the social, political, and economic status quo.

Does an architect's sexuality matter? Not in and of itself, but it does tend to shift his or her mode of operation and preferences. Stanford White, the most flamboyant of the three original partners, was more of what we would today call an interior decorator than a maker of forceful form for autonomous objects. Interior decoration has long been a preferred path for gay men and women, as I tried to show in my 1997 book, *Queer Space: Architecture and Same-Sex Desire* (\$27.50, William Morrow). It combined the interest in making objects placed upon the land, traditionally a male pursuit, with the desire to create a sensual and sensible place within those objects, something we associate with femininity.

These remain speculations on the edge of architecture, as many gay men and women were marginal in their positions, both aesthetic and political. Yet McKim, Mead & White were responsible, as Broderick quotes New England Brahmin Joe Choate saying, for answering "an ambition to improve and adorn the buildings, both public and private—to make them worthy of the municipalities and of the country"

after the Civil War. This was the Gilded Age's house firm, designing both city palaces and country "cottages" for the robber barons. Broderick shows how the triumvirate worked, played, partied, bought, and dined itself into the core of the American elite at the moment when this country was becoming the richest and most powerful in the world. That this involved not just the high-minded pursuits that led, as Henry Adams said of the 1893 Columbian Exposition, to "American thought tending to unity," but more, well, entertaining pursuits, is something the author also makes abundantly clear. She describes the seemingly omnivorous White's sprees with a gay demimonde, including the sons of some of the country's great families (such as the Astors).

The other partners were less overt in their pursuit of pleasure. Of the silent Mead, Broderick asks only if there was "another story" than the absence of Mrs. Mead during his whole career. There were rumors about McKim as well. In general, all of the men seemed to play both sides. (White was notoriously assassinated by the husband of a former girlfriend.) Homosexuality created bonds among the men who were the elite, while marriage let the partners buy into respectability.

The reason this matters is that there were concrete products of this intertwining of pursuits: large buildings that set the tone for American architecture. Even to this day, the McMansions of your average suburb, as well as the remaining symbols of civic power, derive at least in part from McKim, Mead & White's work. If nothing else, this book should make us realize that the influence of gay subcultures, modes of behavior, and models of coherence on American architecture was profound. □

TEXT BY AARON BETSKY



→ Read more of Aaron's design observations at ARCHITECT's Beyond Buildings blog: go.hw.net/Betsky.



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2011 AIA AWARDS

GOLD MEDAL 158
ARCHITECTURE FIRM AWARD 164
INSTITUTE HONOR AWARDS 168

GOLD MEDAL

Fumihiko Maki

THE 2011 AIA GOLD MEDALIST BEGAN HIS CAREER MORE THAN 50 YEARS AGO. **ARCHITECT** VISITS MAKI AND ASSOCIATES, WHOSE WORK IN JAPAN, THE U.S., AND BEYOND HAS MADE MAKI THE FIRST NAME IN ELEGANT, JAPANESE MODERNISM.

TEXT BY KRISTON CAPP
PHOTOS BY STEVE WEST

SE TAI OOSA DIV



In 1956, Fumihiko Maki, Hon. FAIA, began his career as a professor of architecture at Washington University in St. Louis, where he received his first commission: an arts center for the university's main campus. "I did my first project in the U.S. about 50 years ago," Maki says. "Then they [Washington University] asked me to do a second project [the 2006 Sam Fox School of Design & Visual Arts]—after they found out I was still living."

Born in 1928 in Tokyo, Maki studied at the University of Tokyo, the Cranbrook Academy of Art, and finally the Harvard Graduate School of Design. In 1960, he became involved with the Metabolist school. Five years later, Maki established his eponymous firm in Japan.

Maki attributes the decades-long gap between his first U.S. commission and his second—the 1993 Yerba Buena Center for the Arts in San Francisco—to "a question of human resources." Maki and Associates initially focused on projects in Japan. "My firm was not ready at that time to do work overseas. When the opportunity arose, I took it," Maki says.

"I was very grateful," Maki says, speaking about being named AIA Gold Medalist for 2011. "Receiving it at the age of 80, it is almost an endorsement of what I've been doing my entire professional life."

GOLD MEDAL





Maki and Associates is a small operation relative to its stature in the international design arena—in addition to the 2011 AIA Gold Medal, Maki won the Pritzker Prize in 1993—numbering about 40 architects and administrative personnel. “I always maintained a small practice because in a small firm, I can participate in all the projects equally. I can give my full attention to each project,” Maki says. “I’ve never wanted to make my firm organized like a large firm.”

The magnitude-9.0 earthquake that struck Japan in March did not directly impact Maki’s studio, which is located in Tokyo, about 140 miles from the Fukushima Daiichi nuclear plant and farther still from the area devastated by the tsunami. “We are still conducting practice normally,” Maki says. But, he adds, “After a year or two years, it will definitely affect our practice. Energy must be given to reconstruction, not to creating new projects, as we might have expected.”

Communication technology has changed Maki’s thinking about architecture—and his practice. “Without this digital technology, we cannot effectively design a building outside Japan,” Maki says. “The coordination could not be done while waiting for airmail coming from the outside. Today, it’s almost instantaneous, collaborative work.”

GOLD MEDAL

"In old times, you had more time between whatever you do and what you do next. Sometimes I miss that leisurely practice," Maki says. "Also, today, because of this digital technology, so many people participate in the development of a project simultaneously. So you have to always coordinate a number of opinions and desires simultaneously."

Maki and Associates is currently at work on Tower 4 of the new World Trade Center, and a performing arts center for Shimizu, Japan, about 60 miles west of Tokyo. A view of one of the performing arts center's façades (below) reveals planes of red and blue color, which denote two auditoriums, according to Maki.

Maki's work as a teacher and theorist spans his entire career, and his writings rival his buildings in terms of influence. He designed the Keio University Shonan Fujisawa Campus where he now lectures. As a theorist, Maki articulated his beliefs on urbanism and Modernism in a memorable 1964 essay, "Investigations in Collective Form," and in 2008, he had a book of his collected essays published. "I was in Australia a few days ago, and I visited one of its senior architects," Maki says. "He showed me a print of my essay, which he had probably had 30 or 40 years ago when he was studying in England. He had kept it. When he knew I was coming, he wanted me to sign it."





Columbia St. Mary's Hospital, Milwaukee, WI
Architect: HOK St. Louis

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ARCHITECTURE FIRM AW

BNIM

THE KANSAS CITY FIRM DOES NOT JUST ADVOCATE FOR BUILDING GREEN, BUT HAS COME TO DRIVE THE SUSTAINABLE-DESIGN MOVEMENT—LEADING BY EXAMPLE, ALWAYS.

TEXT BY DAVID R. MACAULAY
PHOTO BY IAN ALLEN

ANTICIPATE THE FUTURE: This stands as a defining principle for Kansas City, Mo.'s BNIM. Over its 40-year history, Berkebile Nelson Immenschuh McDowell has amassed a diverse portfolio of regional and national projects, winning more than 350 awards for design, planning, and leadership. Two national AIA presidents—as well as six local chapter presidents—have come from within its ranks. During the late 1980s and 1990s, members of the firm were catalysts in the formation of the AIA's Committee on the Environment (COTE) and the U.S. Green Building Council, plus LEED and other sustainability standards.

With 17 LEED Platinum projects, one of the first-ever living buildings to its name, and its efforts to create the first carbon-neutral communities and campuses in the world, BNIM continues to innovate, pushing boundaries with a sustainable, integrated approach that embraces the concept of regenerative design. Here's a look at some of the firm's milestones of this century so far, and where it's headed next.

**David & Lucile Packard Foundation Sustainability Report and Matrix,
Los Altos, Calif., 2001**

"What if?" BNIM's leaders asked their clients at the Packard Foundation this question. What if building performance could go well beyond LEED, with zero negative impact on the environment, while setting a completely new standard for energy efficiency?

Created during the goal-setting process for the foundation's proposed new headquarters, the Sustainability Report and Matrix examines six levels of design—from Market Building to LEED Platinum and beyond—offering a more holistic understanding of land, water, and energy consumption. Equally important, this new tool outlined the broader implications of each design scenario, including the source of materials and environmental and societal costs, as well as the impact of a building over the next 100 years.

BNIM's Packard Matrix presented a compelling case for new green building technologies and laid the groundwork for the Living Building concept (the Living Building Challenge was launched in 2006). "We wanted to move beyond energy efficiency, to look at biodiversity and human health and productivity and, ultimately, the idea of a living system that would restore the environment," recalls Bob Berkebile, FAIA.

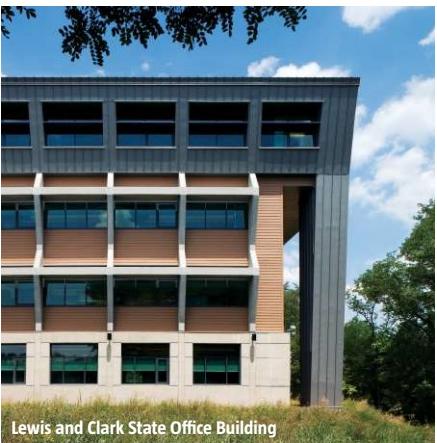


ARD





Bannister Federal Complex



Lewis and Clark State Office Building



Greensburg, Kan.



Omega Center for Sustainable Living



Omega Center

Bannister Federal Complex, Kansas City, Mo., 2004

BNIM's dynamic renovation transformed two bays of this dark WWII-era warehouse into a colorful, light-filled work environment for the Federal Supply Service (FSS). A new atrium and skylights introduce daylight into the 18,000-square-foot regional office, and individual work areas benefit from an underfloor air-displacement system to improve comfort. Today, the FSS reports dramatic productivity gains among employees since opening the office, with an 80 percent reduction in back orders and 60 percent faster fulfillment of new orders.

BNIM's long tradition of adaptive reuse extends from the St. Louis Old Post Office (1983) to Kansas City's Folly Theater (1974–2000) and Union Station (1999) and the corporate offices of Kansas City Power & Light (2009), a LEED Gold interior renovation where energy performance improved by more than 40 percent. "We try to identify what's really important: what represents the cultural memory of a building or group of buildings," notes Steve McDowell, FAIA. "Only then do we look for ways to integrate high performance and contemporary sustainable thinking within that historic fabric."

Lewis and Clark State Office Building, Jefferson City, Mo., 2005

Reminiscent of the limestone bluffs overlooking the Missouri River, this 120,000-square-foot headquarters for the Missouri Department of Natural Resources serves as a green building prototype for the state to showcase a wide array of affordable, replicable design strategies. Despite a restrictive state budget, already two years out of date when the project launched, extensive team collaboration elevated the building from LEED Gold to LEED Platinum.

At Lewis and Clark, BNIM used an integrated design process to achieve high building performance levels—a process that typically relies on input from all stakeholders, including consultants, contractors, clients, and even nontraditional participants such as botanists and artists, to guide design decisions. The firm reinforces this practice on every project.

"We know now that you can't achieve true sustainable design without bringing everyone to the table, by listening to their voices early," says Laura Lesniewski, AIA. "No one knows as much as everyone."

Greensburg Sustainable Comprehensive Master Plan, Greensburg, Kan., 2008

In the aftermath of an F-5 tornado that leveled 90 percent of their rural Kansas town, the citizens of Greensburg rethought their streets, schools, homes, and businesses as a model green community. The BNIM-led sustainable comprehensive master plan and Main Street Streetscape draw on innovative stormwater management, material use, and energy-efficiency measures. The firm's contributions also include a new LEED Platinum K-12 school for the city, an AIA COTE award winner this year.

Revitalizing communities affected by disaster is a fundamental tenet of BNIM's planning work. After assisting with the relocation of two Mississippi River towns following the Great Flood of 1993, its sustainable disaster-response and recovery efforts extended from New Orleans (2005) to Haiti (2010), Nashville (2010), and now the flood-prone city of Fargo, N.D.

"By engaging the entire community in a collaborative dialogue, they were able to create their own vision, to generate unique opportunities for change they never knew were possible," Berkebile says.

Omega Center for Sustainable Living, Rhinebeck, N.Y., 2009

As a design statement on water—understanding, reclaiming, treating, and using it wisely—the Omega Center succeeds powerfully. BNIM incorporated an Eco Machine for primary treatment of wastewater, as well as a water garden and constructed wetland. Housed within a 6,200-square-foot building, this biological system serves as a vital teaching tool to educate Omega visitors on water issues. The facility received both LEED Platinum and Living Building Challenge certification.

Beyond Omega, BNIM continues to press for next-generation practices within the profession—accelerating the adoption of net-zero architecture, whole systems and citywide planning, and regenerative design thinking.

"We need to take responsibility for figuring how to achieve these remarkable feats in energy and water performance, as well as considering economics, nature, and the overall well-being of the people who are going to use these buildings and places," McDowell says. "As designers, we can redefine our practice and lead that change." □

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HONOR AWARDS

TEXT BY ELIZABETH EVITS DICKINSON
PHOTO BY NOAH KALINA

THIS YEAR, THE AIA RECOGNIZED 27 PROJECTS ACROSS THE ARCHITECTURE, INTERIOR ARCHITECTURE, AND REGIONAL AND URBAN PLANNING CATEGORIES. BUT DESIGN IS ONLY AS GOOD AS ITS EFFECT ON THE END USER, SO WE SOLICITED COMMENTS FROM THOSE WITH THE MOST AT STAKE: THE CLIENTS.

Interior Architecture Award Winner:
Washington Square Park Dental,
Montalba Architects, page 184

HONOR AWARDS FOR ARCHITECTURE

2011 Institute Honor Awards for Architecture Jury

David Miller, FAIA, (chair)
The Miller Hull Partnership

Ashley Clark, Assoc. AIA,
LandDesign

Curtis Fentress, FAIA,
Fentress Architects

T. Gunny Harboe, FAIA,
Harboe Architect

David Neuman, FAIA,
University of Virginia

Louis Pounds, FAIA,
ANF Architects

Sarah Snodgrass,
AIAS Representative,
University of Nevada,
Las Vegas

Allison Williams, FAIA,
Perkins+Will

Jennifer Yoo, AIA, VJAA



Ford Assembly Building, Richmond, Calif.

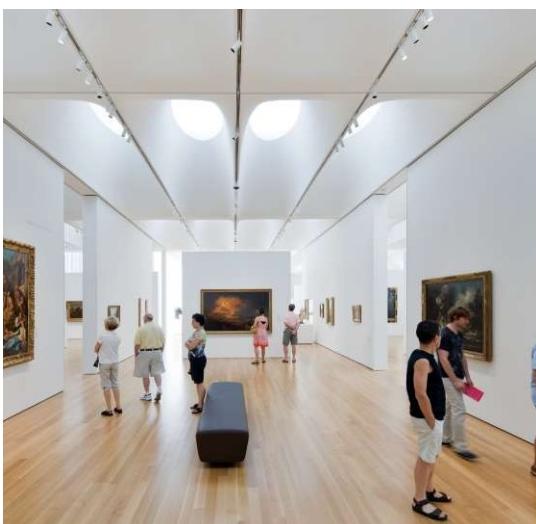
Marcy Wong Donn Logan Architects, Berkeley, Calif.

Designed in 1931 for Henry Ford by Albert Kahn, the 525,000-square-foot Ford Assembly Building on the San Francisco Bay waterfront sat fallow for many years. The restoration and preservation of this crumbling but historic structure transformed the space into a mixed-use, multitenant facility that now accommodates industrial, office, and retail spaces.

Jury: "This renovated facility has improved the region by saving an older building and its embodied energy."

Client: "The design is elegant. It derives important lessons from the original architect, Albert Kahn, while at the same time refreshing and modernizing that design. And we were able to build it out at a fraction of the cost of a new structure. The building became immediately 100 percent leased and the tenants love their spaces."

—EDDIE ORTON, ORTON DEVELOPMENT



North Carolina Museum of Art, Raleigh, N.C.

Thomas Phifer and Partners, New York

Outside, this museum addition is clad in matte anodized-aluminum panels that subtly reflect the adjacent green hillside, while inside, hundreds of elliptical oculi provide full-spectrum daylight for the galleries. Phifer's expansion is effectively one large room, subdivided with freestanding and movable partitions, creating an easy flow from space to space.

Jury: "From a distance, the building appears as a normal industrial building fitting into its context—upon approach it is an amazingly precise and elegant box."

Client: "We were not interested in architectural bravado, but sought architectural excellence in executing a quiet, elegant, and stunning building which married art to nature. We also wanted to remove barriers to [create] a free-flowing democratic experience with art accessible by many entrances all on one level. Thomas Phifer created a stunning building, which expressed our collective goals brilliantly. The ... [return on investment] is priceless. The spirit of the architect lives in every immaculate detail and infuses the space with breathtaking beauty." —LAWRENCE WHEELER, DIRECTOR, NORTH CAROLINA MUSEUM OF ART



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University of Michigan Museum of Art, Ann Arbor, Mich.

Allied Works Architecture, New York and Portland, Ore.

The new wing of the University of Michigan Museum of Art is located on a primary pedestrian route near the heart of the campus and creates a prominent gateway to the university's art collection for both students and the public. The building expands the physical space of the existing 1910 Beaux Arts structure, which benefited from a restoration and modernization.

Jury: "A new addition to an existing historic building reads as a new building and true to itself."

Client: "One of the primary goals of the project was to formulate a design that would attract students to enter the building and become influenced by the art contained within. The architect located a major gallery in the corner of the building with significant exposure to the pedestrian route and used similar materials and a simple modern form that does not compete with the architectural vocabulary of the existing historic buildings. The investment [in hiring the architects] is a small price to pay for securing an outcome that will have a lasting influence on campus for the next century." —DOUGLAS HANNA, UNIVERSITY ARCHITECT

New Acropolis Museum, Athens, Greece

Bernard Tschumi Architects, New York and Paris

At the base of the Acropolis, less than 1,000 feet from the Parthenon, Tschumi's concrete-and-steel structure rises on pilotis above an exposed archeological dig. In the galleries, filtered daylight washes over sculptures that date from the Archaic to the late Roman periods of classical antiquity. The museum also incorporates a 200-seat auditorium, a café overlooking the archeological excavation, a store, and a restaurant with views of the Acropolis.

Jury: "It is very contextual and powerfully respectful of the urban fabric of Athens while doing a dance around the ruins."

Client: "Bernard Tschumi understands that content and architectural schemes are inseparable. The process was oriented to both problem solving and creativity. Since opening in June 2009, we have received over 3 million visitors ... [who] engage with the museum in a positive manner and are constantly surprised by what comes around the corner."

—DIMITRIOS PANDERMALIS, PRESIDENT, NEW ACROPOLIS MUSEUM



One Jackson Square, New York

Kohn Pedersen Fox Associates, New York

Located in Greenwich Village on a site that was formerly a parking lot, this new high-end residential structure integrates itself into the historic fabric of the neighborhood while standing out for its undulated façade and mix of volumes. The 30-unit condominium adapts to zoning regulations and the scale of surrounding buildings with massing that transitions from 11 stories to seven stories.

Jury: "The execution of the window wall is a strong resolution of the detail nicely resolved."

Client: "The One Jackson Square site was quite complex for a relatively small project: facing a public park, irregularly shaped plot, shallow depth, split zoning, and a location in the Greenwich Village historic district. KPF did a masterful job of assessing these diverse constraints and synthesizing them into a compelling, cohesive design solution."

—DAVID S. PENICK, VICE PRESIDENT, DEVELOPMENT, HINES INTERESTS



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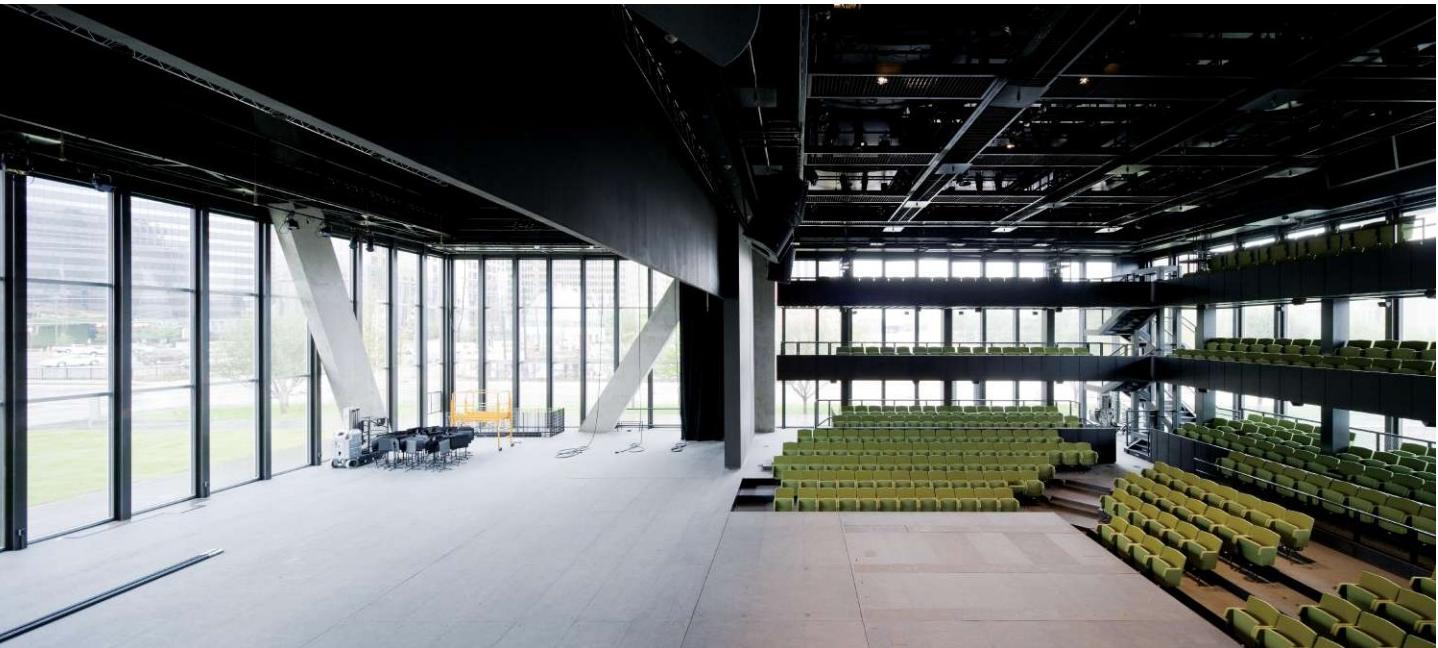
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**Dee and Charles Wyly Theatre,
AT&T Performing Arts Center, Dallas**

REX | OMA, New York

Located in the 10-acre Dallas Arts District, this \$354 million, 80,300-square-foot building quite literally turns traditional theater typology on its side, placing back- and front-of-house functions above and below the glass-walled 575-seat auditorium. Flexible seating allows for easy transitions between proscenium, thrust, traverse, and flat-floor configurations.

Jury: "This building completely rechoreographed the way in which one experiences a theater."

Client: "Our investment has already paid off in spades. Interest in attending a performance in this innovative space has soared. Performers are delighted (an understatement—they are practically giddy) to be able to conceive of so many ways to do a performance, and audiences love the surprise of never knowing what they are going to see."

—DEEIE ROSE, FOUNDING MEMBER OF THE BOARD OF DIRECTORS OF THE AT&T PERFORMING ARTS CENTER



Rooftop Garden, San Francisco Museum of Modern Art, San Francisco

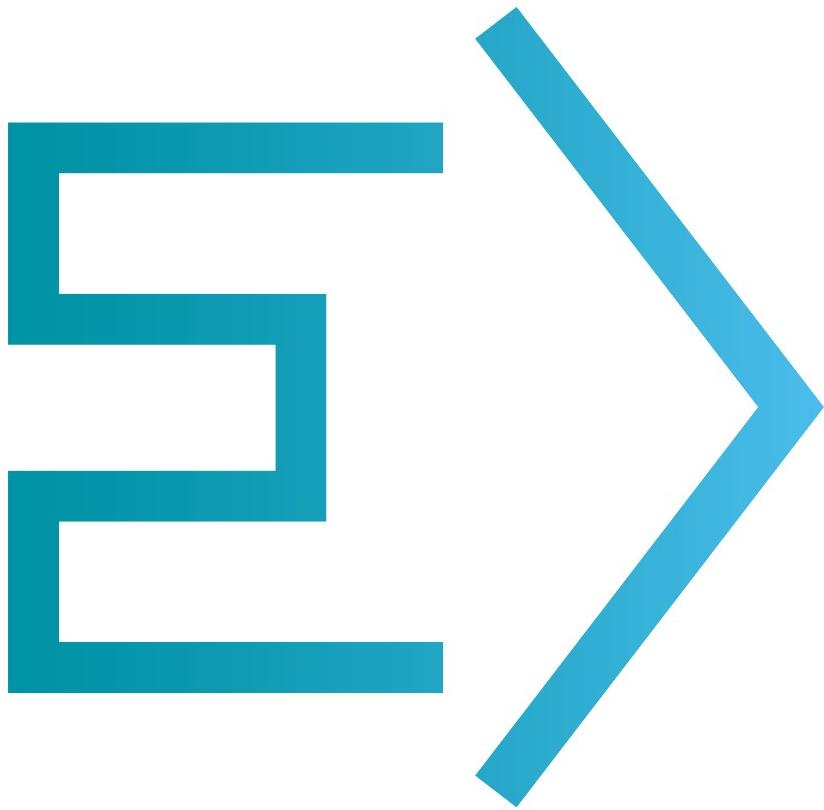
Jensen Architects/Jensen & Macy Architects, San Francisco

In order to create an open-air sculpture garden on a dense urban site, the architects remade the roof of an adjacent building and connected it to the existing museum via a glass-enclosed bridge with fantastic views of downtown San Francisco. A pavilion with full-height sliding glass doors opens onto the garden, while a 3,000-square-foot extension to an existing gallery—called the Overlook—cantilevers over the garden, providing interior gallery space with unobstructed views of the exterior landscaping and art.

Jury: "This is a model of how we can enrich the urban fabric via a pavilion rooftop and the safety of a cloistered area."

Client: "This design was chosen for its elegant simplicity and the lack of competition it offered to the art to be displayed therein. The resultant space has very successfully accomplished just that. Employing the vision of the Jensen team was a priceless investment; watching them bring it along to fruition was a wonder to behold."

—JOE BRENNAN, DIRECTOR OF FACILITIES, SAN FRANCISCO MUSEUM OF MODERN ART



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Horizontal Skyscraper Vanke Center, Shenzhen, China

Steven Holl Architects, New York and Beijing

By suspending the center over a tropical garden, the architects allowed for increased public space as well as ecological remediation of the landscape. One of Southern China's first LEED Platinum mixed-use projects—with a hotel, offices, and apartments—the complex is as long as the Empire State Building is tall.

Jury: "This project skips along from mound to mound and manipulates the landscape; it builds it up and shapes it into a powerful form above the land with inventive manipulation."

Client: "The weather is hot in Shenzhen, the summer is very long, so the design provides a way to create shade. People like the relationship between the building and the environment because the building provides a huge open space and at the same time provides a huge amount of shadow to the ground."—ZHU JIAN PING, FORMER PROJECT COORDINATOR, VANKE

Diana Center, Barnard College, New York

Weiss/Manfredi Architecture/Landscape/Urbanism, New York

The 98,000-square-foot, seven-story building located on Barnard College's four-acre Manhattan campus serves the art, architecture, theater, and art history departments, and includes faculty offices, a black box theater, and a café, among other facilities. The structure, which replaces a Brutalist building on the northeast corner of campus, achieved LEED Gold certification and features a renovated landscape of garden terraces.

Jury: "The integration of the landscape and architecture is the hallmark of this project and the heart of a good campus building."

Client: "We wanted the building to accommodate a variety of user groups simultaneously and make a strong visual connection between its neighbors in Morningside Heights and the interior campus, and reflect, more symbolically, Barnard's commitment to leadership in the liberal arts. The architects succeeded remarkably well and were very creative and helpful at critical stages of budget management."

—LISA GAMSU, VICE PRESIDENT, ADMINISTRATION AND CAPITAL PLANNING, BARNARD COLLEGE



U.S. Land Port of Entry, Warroad, Minn.

Julie Snow Architects, Minneapolis

The Port of Entry meets the complex, high-tech security and administrative needs of Customs and Border Protection and the Department of Homeland Security while promoting circulation on the site for commercial and recreational traffic. The wood-clad building responds to the physical and aesthetic challenges of a wetland site in a remote northern location.

Jury: "One of the most elegant premeditated pieces of architecture around, it feels civic and that it belongs."

Client: "The architect is crucial to the integrated design process. They bring an overarching holistic perspective that permeates the entire project from landscape and site design to finishes and maintenance concerns. Julie Snow Architects was persistent in pushing the envelope during the design process and challenged many assumptions about northern border facilities."

—ROBERT THEEL, AIA, CHIEF ARCHITECT, GREAT LAKES REGION, U.S. GENERAL SERVICES ADMINISTRATION

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HONOR AWARDS FOR INTERIOR ARCHITECTURE

2011 Institute Honor Awards for Interior Architecture Jury

John Ronan, AIA, (chair),
John Ronan Architects
Jaime Canaves, FAIA, Florida International University
Margaret Kittinger, AIA,
Beyer Blinder Belle Architects
Bryan Lewis, Assoc. AIA, The Capital Group Cos.
Brian Malarkey, FAIA, Kirksey



The Academy of Music, Philadelphia

KlingStubbins, Philadelphia

This National Historic Landmark building is the oldest continually operating concert hall in the United States. The restoration to bring it back to its original state reversed more than 150 years of ad hoc alterations. The interior restoration, based on an 1860s photo, includes light fixtures and color schemes true to the original design.

Jury: "A thoughtful, meticulous restoration in which technical improvements are ingeniously concealed,

and lighting is carefully placed to draw attention to the proportions, color, and detailing that reawaken the space's unique character."

Client: "I don't think you can quantify the return on investment for this project. It's invaluable. As stewards of a National Historic Landmark, it's our responsibility to maintain this treasure for the future generations, and to have the right architect means you are creating the best possible legacy for the future."

—JOANNA MCNEIL LEWIS, PRESIDENT AND CEO, THE ACADEMY OF MUSIC



Fashion Institute of Design and Merchandising, San Diego

Clive Wilkinson Architects, Los Angeles

Located on the third floor of a high-rise office building, the San Diego campus of the Fashion Institute of Design and Merchandising (FIDM) brings all of the needs of a school—public and classroom areas, a library, technology resources, and offices—into a 30,000-square-foot interior. Distinctive graphics and forms define different zones.

Jury: "What might otherwise be a repetitious or simple environment is differentiated by unique spatial moments and interesting use of materials."

Client: "Since FIDM is an institution of design education, the vision of the college is to envelop students in a creative atmosphere as almost literally part of their studies. Inspiration is key to surroundings. The moment one is surrounded by Wilkinson's high-concept interiors, students, visitors, faculty, and staff are inspired by the idea of design. He underscores the college's education mission."

—ANNIE JOHNSON, VICE PRESIDENT AND CFO, FIDM

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INTERIOR ARCHITECTURE

Conga Room, Los Angeles

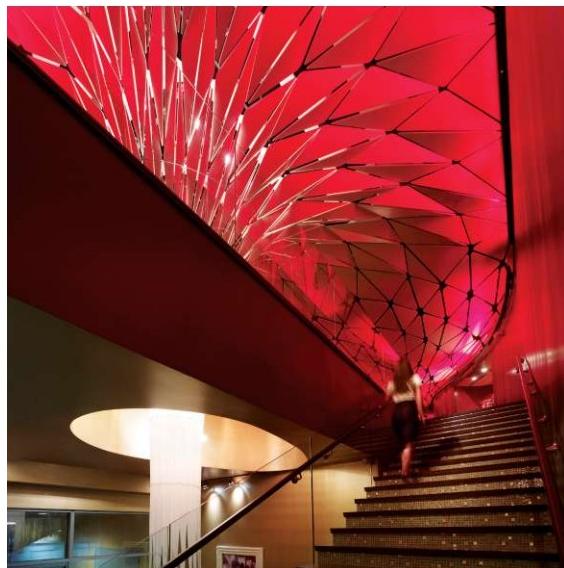
Belzberg Architects, Santa Monica, Calif.

Located near Los Angeles' Staples Center, the Conga Room is a Latin-inspired interior with a functional and malleable layout for live entertainment, dancing, and events. Petal-shaped acoustic tiles can be angled to modulate sound and reflect the heavy bass and pitch of rumba and salsa music, and a computerized LED system can be synchronized with the beat.

Jury: "The exploration of dance concepts, modular shapes, acoustics, and bold colorful form exhibited in this project are combined in a way that one would never expect."

Client: "The greatest return on investment is from event planners and party opportunities. People love the exciting décor along with its functionality. We get a lot of parties and bookings as a direct result of the look and feel of the venue."

—BRADLEY S. GLUCKSTEIN, PRESIDENT AND CEO, APEX REALTY/THE CONGA ROOM

**John E. Jaqua Academic Center for Student Athletes, Eugene, Ore.**

ZGF Architects, Portland, Ore.

The new academic home for NCAA athletes at the University of Oregon is sited at a busy intersection, creating a highly visible entryway to the school. A façade composed of two glass walls with an interstitial stainless steel screen manages views and aids in temperature control. Diffused natural light and wood surfaces create a warm glow inside.

Jury: "Beautifully detailed throughout. Remarkable introduction of color and management of natural light. The atmosphere is comfortable yet stimulating, with furnishings that are highly functional yet inviting and uniquely designed."

Client: "For us, return on investment in this building means our ability to recruit the best athletes. When you bring a parent into this building for the first time, their mouth drops open and they are floored by the amount of detail. From the stairwells to the garbage cans, every piece was thought about." —STEPHEN STOLP, EXECUTIVE DIRECTOR, JAQUA CENTER

Alchemist, Miami Beach, Fla.

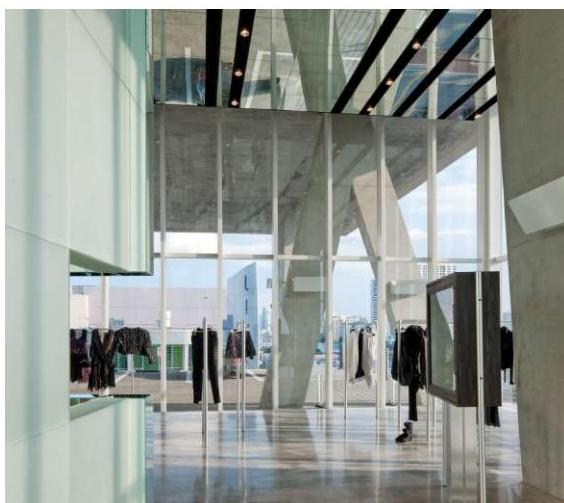
Rene Gonzalez Architect, Miami

Twenty-two-foot-high glass panels, a kinetic mirror installation, and a reflective interior ceiling make this clothing store—located on the fifth floor of a parking garage designed by Herzog & de Meuron—seem to hover. Pedestrians have clear views into the boutique, which is perched on the edge of the floor plate and visible from the street below, helping to draw curious clientele up to the store and to the merchandise they see reflected above.

Jury: "The design is respectful of the site's architecture but manages to shed the trappings of the conventional store by making its presence known in a subtly elegant and sophisticated manner."

Client: "The most common reaction [to the store] is that it is quite a surreal environment for retail and is truly one of a kind. This was a priceless design that we now see couldn't have been done any other way to ... [capture] the true spirit and dream we were searching for."

—ROMA COHEN, OWNER, ALCHEMIST



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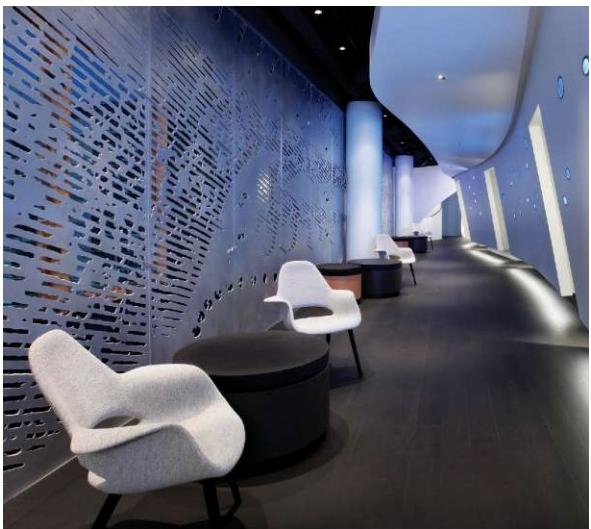


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INTERIOR ARCHITECTURE

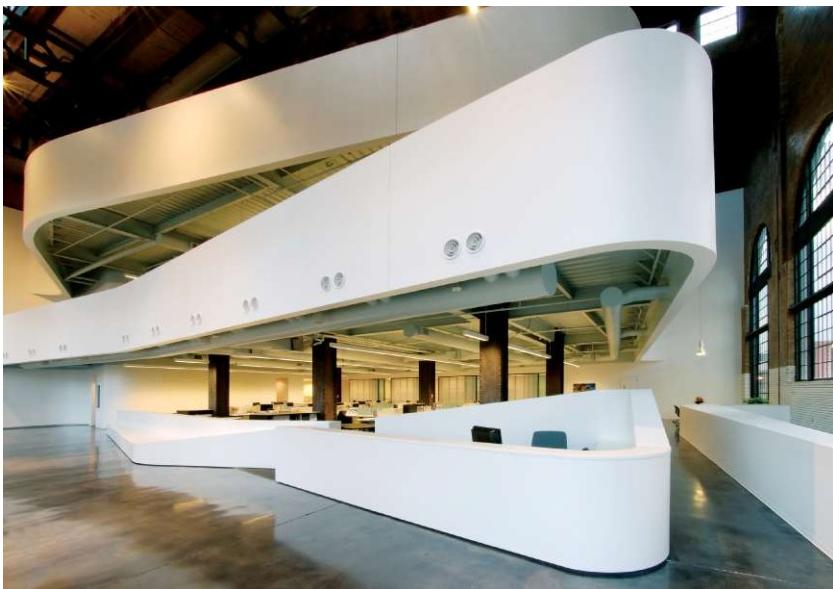
**Moving Picture Co., Santa Monica, Calif.**

Patrick Tighe Architecture, Santa Monica, Calif.

This 8,200-square-foot space was designed for a U.K.-based post-production company inside an office building in downtown Santa Monica. It combines trade-specific functions—such as darkened editing bays—with interior spaces that play with color and light, in a nod to the company's reputation for manipulating color in film.

Jury: "The spatial sequence is cinematic. The reel-like element that organizes the space changes as one moves through it, frame by frame, incorporating the various moods, lighting environments, theatrical clues, and subtle suggestion of movement through a process."

Client: "Our goal was to create a space that was visually impactful and inspiring for our artists and clients alike, and to do this in a smart and effective way, so that the impression was not of limitless sums of money having been spent (which was not the case). Patrick exceeded our expectations and we could not have been more thrilled with his results." —MARK BENSON, CEO, THE MOVING PICTURE CO.

**Registrar Recorder County Clerk Elections Operations Center, Santa Fe Springs, Calif.**

Lehrer Architects, Los Angeles

This 110,000-square-foot office and warehouse facility is responsible for the organization and distribution of all voting materials for Los Angeles' 5,000 precincts. The existing tilt-up concrete structure had to be restored between election cycles. Strong color and graphics give the mammoth building a human scale, and economical design strategies brought the project in on time and under budget.

Jury: "Working with a modest budget and minimal means, the designer turned this space into a celebration through a skillful use of color, scale, and graphics. The collaborative effort between the architect, client, and artist is very successful and commendable."

Client : "The architect had the creative vision of transforming the space into a nontraditional warehouse environment incorporating the use of color, space, and light, while simultaneously creating a workflow that provided for a highly efficient, productive, and flexible work environment. The architect also created an atmosphere that energized and honored employees for the work they do and the public we serve. The result far exceeded every expectation and more."

—DEAN LOGAN, REGISTRAR-RECORDER AND COUNTY CLERK, LOS ANGELES COUNTY

The Power House Restoration/Renovation, St. Louis

Cannon Design, St. Louis

A 1928 municipal power building gets a new life as the LEED Gold-rated St. Louis headquarters of Cannon Design. The National Historic Landmark exterior was fully restored, while the interior of the empty shell—which was gutted by the city before Cannon bought it—was outfitted with energy-efficient mechanical systems and a new mezzanine level to accommodate the building's massive arched windows. Curvilinear railings contrast with the original steel, wood, and brick structure.

Jury: "The project maintains, preserves and reestablishes the integrity of the existing, historic building while creating modern, attractive, and energy-efficient interior spaces that accommodate user needs."

Client: "The space helps us communicate to our current and potential clients what our aspirations are as architects. Clients are able to see both our respect for the extant built environment and our unique notion of contemporaneity. And we are able to express through our own working environment our commitment to a sustainable future."

—DAVID POLZIN, AIA, DESIGN PRINCIPAL, CANNON DESIGN





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INTERIOR ARCHITECTURE

**Armstrong Oil and Gas, Denver**

Lake|Flato Architects, San Antonio

The client's goal was to respect this building's colorful past—it was originally a brothel, and later a machine shop—and salvage as much of the industrial structure as possible while modernizing the interior for a local Denver business. Raw materials were preserved and new circulation routes—including two cantilevered, folded steel-plate staircases and a catwalk—were added. An interior courtyard brings light into an otherwise dark space.

Jury: "This project's expression of the best of what the original machine shop building had to offer is superbly celebrated with the architecturally honest palate of brick, steel, concrete, and glass."

Client: "The building is wickedly popular with everyone who enters it. Requests to use the space for meetings, charitable events, wine tastings, etc., are an everyday occurrence. On multiple occasions, people have requested jobs and dropped off their résumés for the chance to work in the building. At the end of the day, the effect the building has on me, my employees, and the people who visit is exactly what we were going after."

—BILL ARMSTRONG, OWNER, ARMSTRONG OIL AND GAS

**Vancouver Convention Centre West, Vancouver, Canada**

LMN Architects, Seattle; DA/MCM, Vancouver, British Columbia, Canada

This LEED Platinum building sits on a former brownfield site in downtown Vancouver, and occupies 14 acres on land and 8 acres (supported by 1,200 piles) over water. The structure utilizes local resources—such as the seawater used in the heat-pump system—and has both blackwater treatment and desalination plants on site. The glazed enclosure offers views of downtown and the nearby mountains, and the palette features regional materials such as sustainably harvested Douglas fir. The building is topped by 400,000 indigenous plants on 6 acres of living roof.

Jury: "An amazingly inviting, warm public circulation is achieved through the use of daylighting, building landforms, and local materials that both reference the area's industry and provide richly detailed surfaces."

Client: "We compete globally, with Cape Town one day, Rio the next day, Boston the next. Our potential clients are people who are wined and dined all over the world because of the economic impact they bring to a city with a large convention, so they've seen it all. We found quickly that once they see this space, without exception, they are absolutely in awe. We receive accolades from around the world. There's simply nothing else like it." —WARREN BUCKLEY, PRESIDENT AND CEO, PAVCO

Washington Square Park Dental, San Francisco

Montalba Architects, Santa Monica, Calif.

To illuminate this modest 1,900-square-foot dental office, semitranslucent partitions—which the architects dubbed "floss walls"—filter daylight into exam and operating rooms and also safeguard patient privacy. Low-irrigation landscaping references the urban park nearby and materials serve double duty in order to save on space and money. (For example, a horizontal slot in the waiting room's steel-and-wood wall offers views into the office; the wall folds in on the other side to double as a light table for X-rays.)

Jury: "It delightfully shows what you can do with a small space on a tight budget through a design that is visually very interesting and highly functional."

Client: "We've now been open 10 months and we're booked out an entire month. It usually takes a dental office 10 years to achieve that type of patient flow. We were told by a lot of people there was absolutely no way we could open a dental office from scratch, in San Francisco, and in this economy. The design of this office is what made our business."

—SARA CREIGHTON, CO-OWNER, WASHINGTON SQUARE PARK DENTAL





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HONOR AWARDS FOR REGIONAL AND URBAN DESIGN

2011 Institute Honor Awards for Regional and Urban Design Jury

Daniel Williams, FAIA, (chair),
Daniel Williams Architect
C.R. George Dove, FAIA,
WDG Architecture
Vivien Li, Boston Harbor Association
Claire Weisz, AIA, WXY
Architecture + Urban Design
Bernard Zyscovich, FAIA,
Zyscovich Architects



Chicago Central Area DeCarbonization Plan, Chicago

Adrian Smith + Gordon Gill Architecture, Chicago

This comprehensive plan maps out a strategy for the more than 550 buildings in Chicago's Central Loop to meet both the city's Chicago Climate Action Plan and the 2030 Challenge. The plan employs eight strategies that would reduce carbon emissions from existing commercial infrastructure and encourage building owners to retrofit their properties, while also addressing transit. The city was recently awarded \$25 million in grants from the U.S. Department of Energy to implement the plan.

Jury: "This ambitious proposal shows how a dense urban area can effectively continue to reduce greenhouse gas emissions and lessen the carbon footprint of its business district."

Client: "Ultimately our goal was energy efficiency, but ... [the architects] had a much broader vision that helped us look at a comprehensive transformation by adding water, waste, and whole other categories. It's a very exciting vision that helps people who don't deal with ... [sustainable development] get excited about achieving these multiple purposes."

—SUZANNE MALEC-MCKENNA, COMMISSIONER OF ENVIRONMENT, CITY OF CHICAGO



Community | City: Between Building and Landscape. Affordable Sustainable Infill for Smoketown; Louisville, Ky.

Marilys R. Nepomechie, FAIA, Marilys R. Nepomechie Architect and Florida International University; Marta Canavés, Marta Canavés Design and Florida International University

The community of Smoketown, Ky.—a traditionally black residential neighborhood on the Ohio River and near a historic Olmsted park—needed a vision for revitalization after years of neglect. This community development plan knits existing public spaces with new infill in an effort to establish a walkable community that celebrates its sense of place.

Jury: "The challenges facing Smoketown are found in small and large communities everywhere. Likewise, the plan for Smoketown, with its emphasis on infill development, sustainable landscaping, and sensitivity to cultural and historic components, is a model for communities near and far."

Client: "This plan works because it's very attuned to the particular circumstances of this neighborhood. It doesn't try to make the neighborhood something it's not. It respects the culture and respects the historic visual language of the buildings."

—DAVID MOHNEY, DEAN EMERITUS AND PROFESSOR OF ARCHITECTURE, COLLEGE OF DESIGN, UNIVERSITY OF KENTUCKY



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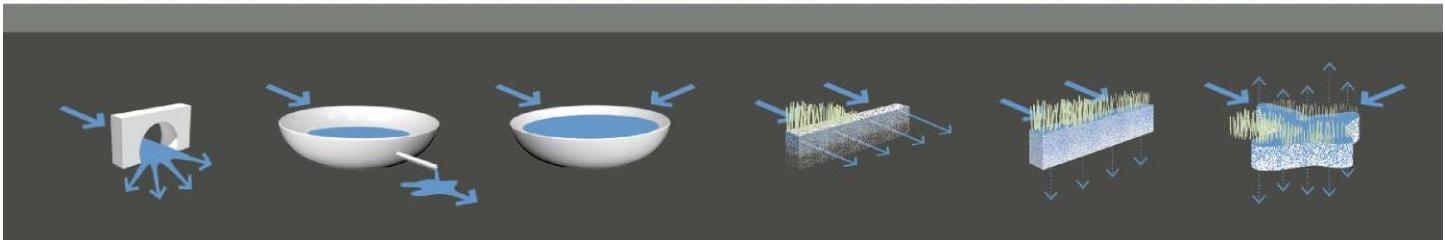
Skidmore, Owings & Merrill, Chicago

The Central Business District in Beijing needs to expand in order to accommodate a robust market for new commercial and industrial space as well as arts and cultural facilities. The 1.2-square-mile site was designed to accommodate future growth while implementing sustainable systems—such as advanced public transportation and infrastructure with smart-technology-controlled utilities—that ensure a large-scale, low-carbon development with a vast network of open space, parks, and green boulevards.

Jury: "This project shows how planning for a cohesive central business district is the best strategy for truly sustainable development."

Client: "The scheme submitted by Skidmore, Owings & Merrill is very mature. ... The connection with the original CBD Central District has been considered in the design of a green system, business facilities, underground development, and road systems, to show an integrated area. The design also considers the city's density and massing, and also pedestrian-friendly and comfortable spaces to create a vital city life."

—WANG QINGFENG, CHIEF OF THE PLANNING ADMINISTRATION DIVISION, BEIJING CENTRAL BUSINESS DISTRICT ADMINISTRATION COMMITTEE



Low Impact Development: A Design Manual for Urban Areas

University of Arkansas Community Design Center,
Fayetteville, Ark.

A 230-page, graphically oriented publication for cities, regional authorities, homeowners, institutions, developers, and designers, the *Design Manual for Urban Areas* offers soft engineering and green stormwater-management techniques, as well as strategies for the retrofit of existing infrastructure.

Jury: "Urban design at a scale that architects can grasp and incorporate into their own projects. It is a project both specifically technical and inspiring all at the same time."

Client: "This book, and the LID [low-impact development] approach that it presents, is already proving to have an important impact on the developments where it has been applied. Indeed, in the past few years, many cities and states have adopted requirements to incorporate these practices into their laws, codes, and regulations. This manual plays a critical role in encouraging communities to improve both their water quality and the quality of their neighborhoods through a set of practices that are community-enhancing."

—DOV WEITMAN, CHIEF, NONPOINT SOURCE CONTROL BRANCH, ENVIRONMENTAL PROTECTION AGENCY



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REGIONAL AND URBAN DESIGN


Townscaping an Automobile-Oriented Fabric; Farmington, Ark.

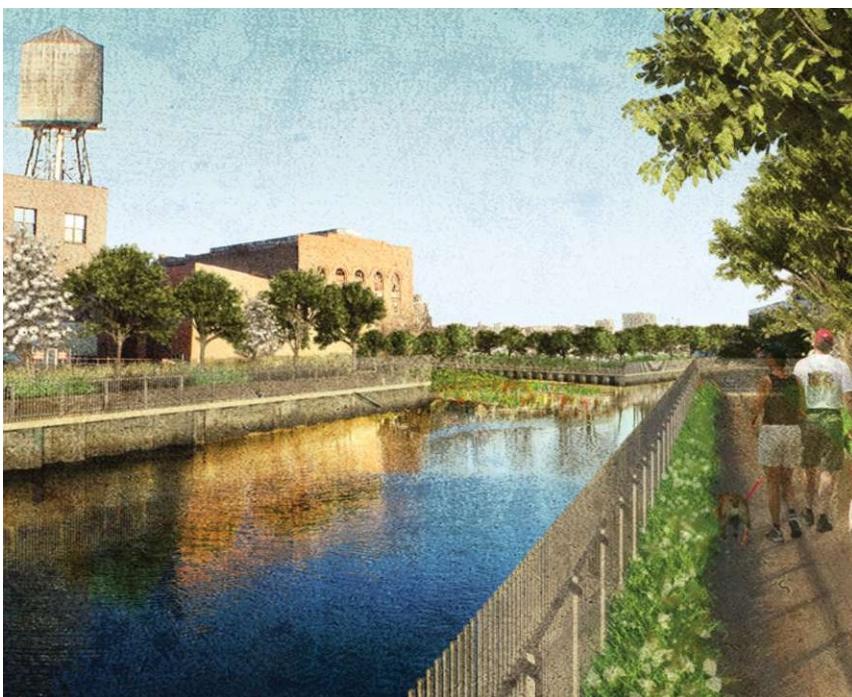
University of Arkansas Community Design Center,
Fayetteville, Ark.

This 5,000-person bedroom community was once a center of farming and agriculture, but today it is divided by a busy, five-lane arterial road. The plan incrementally retrofits the community by condensing infrastructure updates—such as the introduction of traffic roundabouts and public art—into a series of nodes that provide this car-centric town with a more vibrant pedestrian experience.

Jury: "This plan proves that a place laid out originally for cars can be adapted to a future where people are connected in other ways."

Client: "The National Endowment for the Arts is always interested in projects that improve the liveability of communities. I believe this plan has elements and lessons for other communities, and it's a model for places that are auto-dependent and for the idea of retrofitting suburbia. This is a great project and we're proud to be a part of it."

—JASON SCHUPBACH, DIRECTOR OF DESIGN, NATIONAL ENDOWMENT FOR THE ARTS


Gowanus Canal Sponge Park, New York

Dlandstudio, Brooklyn, N.Y.

Sponge Park aims to turn a polluted waterway in Brooklyn, N.Y., into a local attraction that helps mitigate contaminated runoff from combined sewer overflows. A 7.9-acre esplanade and open space is combined with 3.5 acres of remediation wetland basins and a water-management system.

Jury: "This project addresses a common problem in older cities with a striking way to create valuable urban open spaces as a byproduct."

Client: "One of the greatest challenges presented to Dlandstudio for the Sponge Park project lies in coordinating between so many governmental and nonprofit partners ... [as well as] requirements related to scientific rigor and quality control that apply to any project using federal money. There is also a general stigma of the Gowanus being somewhat beyond redemption. Dlandstudio did a very smart thing by partnering with a neighborhood group at the get-go and being level-headed and patient with project partners." —CLAIR RYAN, ENVIRONMENTAL ANALYST, NEW ENGLAND INTERSTATE WATER POLLUTION CONTROL COMMISSION

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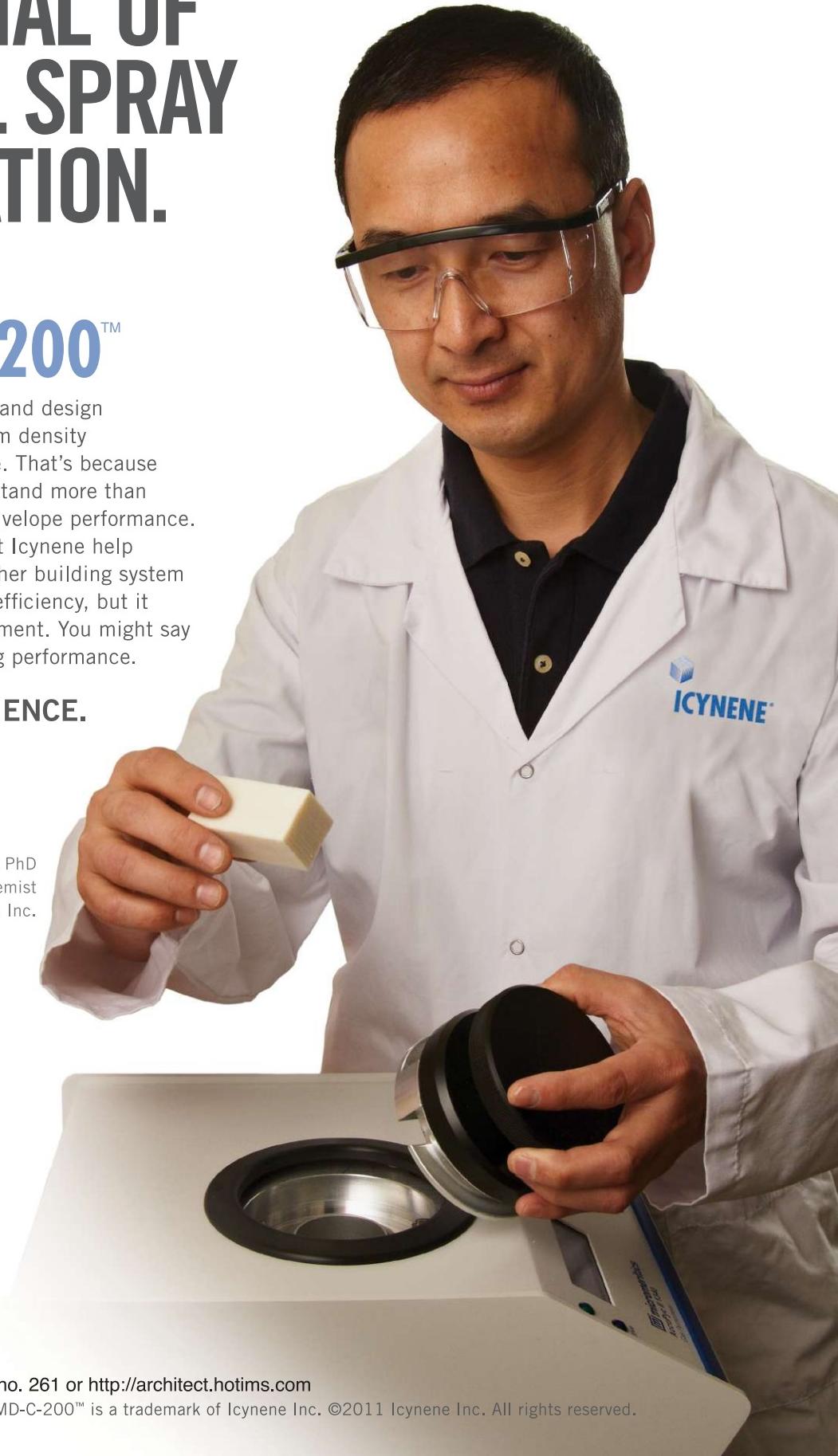
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THE ARCHITECT

50

OUR ANNUAL RANKING OF AMERICAN ARCHITECTURE FIRMS JUDGES THEM ON THREE FACTORS: PROFITABILITY, SUSTAINABLE ETHOS, AND DESIGN QUALITY. BY LOOKING AT THE WHOLE PICTURE, WE'RE ABLE TO HONOR NOT THE BIGGEST, BUT THE BEST.

EDITED BY AMANDA KOLSON HURLEY
RESEARCH BY KARLIN ASSOCIATES
PHOTOS BY JOE PUGLIESE

SO, IS IT GETTING ANY BETTER? In the third year of the ARCHITECT 50 ranking, signs of a rebound glimmer on the horizon. March was the fifth consecutive month in which the Architecture Billings Index showed positive (albeit very modest) growth, and inquiries to firms regarding new projects are strong. If most U.S. architecture firms are not thriving, at least some of them—25 percent, the AIA estimates—have gotten a boost through projects stemming from the American Recovery and Reinvestment Act of 2009.

The 2011 ARCHITECT 50—based on a composite assessment of a firm's profitability, sustainable ethos, and design ability—shows that A and A/E firms, large and small, *can* do well in this economy. By our calculations, the most profitable firms in 2010 include heavyweights such as Fentress Architects, NBBJ, and Gensler, but also Princeton, N.J.'s smaller Ikon.5 Architects. If you still need proof that smart business strategy and careful financial management can make or break any design enterprise, look no further.

Perhaps the most striking thing about this year's ranking is how many of the top firms are focused on the higher-education market. Aren't we always hearing about colleges and universities feeling the pinch? Yes, says management consultant Ray Kogan, AIA, but there are other factors at work. Higher-education institutions "are in their own competitive market as they try hard to attract more students to make up for their other revenue shortfalls."

Ever-tighter public budgets, healthcare reform, and continued sluggishness in commercial construction leave much unclear about the future, so it's difficult to say which markets might be on the rise. Then again, that means the field is wide open for our 2012 ranking. Wherever you are based, and whatever kind of work you do, why not enter next year?

110

RANK FIRM

1

PERKINS+WILL • Chicago • Employees: 900 or more

From second place last year, Perkins+Will climbed to the top spot thanks to strong revenue, true-green commitment, and a bumper crop of awards in 2010 (five bestowed by AIA Miami alone).

SCORING: Net revenue per employee: 1194; Sustainable practices: 1731; Awards: 2115

2

SMITHGROUP • Detroit • Employees: 500–899 • SmithGroup has weathered the recession in great form by staying focused on core markets—and upping the ante design-wise, winning a slew of AIA state and ASLA honors.

Net revenue per employee: 1158; Sustainable practices: 938; Awards: 2732

3

WILLIAM RAWN ASSOCIATES • Boston • Employees: 10–49 • The New England practice that William Rawn, FAIA, built is back in our top five, after its number-one showing in 2009. Having a 100-percent LEED accreditation rate among its staff certainly helped.

Net revenue per employee: 1785; Sustainable practices: 1997; Awards: 977

4

SKIDMORE, OWINGS & MERRILL • New York • Employees: 900 or more • Last year's number-one firm remains high in the ranking, a reflection of profitability and the design prowess for which it has long been renowned.

Net revenue per employee: 1534; Sustainable practices: 1149; Awards: 1287

5

ANN BEHA ARCHITECTS • Boston • Employees: 10–49 • On its first ARCHITECT 50 outing, this Boston firm cracked the top five. Its 2010 Music Building renovation and expansion at the University of Pennsylvania was the first LEED Gold project on that campus.

Net revenue per employee: 1539; Sustainable practices: 1681; Awards: 644

6

SASAKI ASSOCIATES • Watertown, Mass. • Employees: 200–499 • Interdisciplinary Sasaki is a force to be reckoned with in urban design and master planning. Its buildings aren't bad, either, as an AIA San Francisco design award and an AIA Technology in Architectural Practice BIM award attest.

Net revenue per employee: 1186; Sustainable practices: 1415; Awards: 1256

7

IKON.5 ARCHITECTS • Princeton, N.J. • Employees: 10–49 • The exceptionally strong financials of ARCHITECT 50 first-timers Ikon.5 prove that small and mid-sized firms don't necessarily have to struggle to pay their bills.

Net revenue per employee: 2450; Sustainable practices: 888; Awards: 351

8

DLR GROUP • Omaha, Neb. • Employees: 500–899 • Ranked third last year, K-12 and justice-facility powerhouse DLR merged last year with WWCOT, hinting at interesting developments to come.

Net revenue per employee: 1536; Sustainable practices: 1043; Awards: 1076

9

ZGF ARCHITECTS • Portland, Ore. • Employees: 200–499 • ZGF continues to push the envelope of sustainable design, as its much-praised John E. Jaqua Academic Center (see page 180) attests.

Net revenue per employee: 1234; Sustainable practices: 1360; Awards: 1040

10

FxFOWLE • New York • Employees: 100–199 • With a clutch of LEED Gold and Platinum buildings to its name, FxFowle is now designing the Housatonic River Museum, expected to be the first net-zero institution in the Northeast.

Net revenue per employee: 1280; Sustainable practices: 1887; Awards: 464

Like many other firms that performed well in this year's ranking, **Ikon.5** has a portfolio rich in academic projects, including Barrett Honors College at Arizona State University and the Center for Wellness at the College of New Rochelle.



Note: Scoring ranges were set by Karlin Associates. Scores do not reflect dollar figures or number of awards.

MODEL EMPLOYEE:

Leigh Christy

When Friends of the Los Angeles River needed an architect to plan the reclamation of a flood plain just east of downtown, it turned to Perkins+Will senior associate Leigh Christy, AIA, who heads the social responsibility committee at the firm's L.A. office. (The committee identifies nonprofits that could benefit from pro bono design services.) Christy, 37, ended up leading a collaborative of southern California firms whose work will help the organization promote its goal of riverbank restoration.

A University of Michigan and University of California at Berkeley grad who has been at Perkins+Will since 2004, Christy is committed to such pro bono projects—but even her paying work is civic-minded. Witness the new LAPD Rampart station near MacArthur Park, part of an effort to make the city's police force accessible to the public. Christy's current projects include a new student services building for Modesto Junior College and a new home for LAPD's Metropolitan Division. She lauds Perkins+Will for encouraging "an entrepreneurial spirit"—one reason she acts as both project architect and project manager on many jobs.

PERKINS+WILL

AS CO-DIRECTOR OF Perkins+Will's firmwide sustainability initiative, Paula Vaughan, AIA, has consulted on hundreds of projects, including one very close to home: the firm's office in Atlanta, a 1980s building that it gutted and rebuilt with an impressive array of green features. Since moving in several months ago, Vaughan has been busy evaluating (and adjusting) the building's performance, as well as giving tours to everyone from architecture students to Perkins+Will competitors. Of the knowledge the firm developed in designing the new office, she says, "We're not seeing it as a secret competitive edge, but as something to share with the entire profession."

Perhaps that openness is the firm's competitive edge. How else to explain the firm's rise in revenue over last year (just one reason it tops the ARCHITECT 50). The firm has, for the most part, resisted cutting fees, says president and CEO Phil Harrison, FAIA, despite recession-related pressures. His concern isn't about short-term profits. "You can go for a long time at break even," he says. "The problem is devaluation of your services, and what that will mean, long-term, for the profession." So instead of discussing fee reductions, Harrison says, he talks to clients about bigger-ticket items such as cutting energy use and speeding up construction through prefabrication. Pretty soon, any "give" in the architect's fee is dwarfed by architect-initiated savings.

The firm's buildings are also winning design awards, confirming the appeal of what Harrison calls "human-centered modernism"—a crisp but inviting look that is becoming recognizable as something of a firm style—though Harrison says it's not the result of an aesthetic predilection so much as a commitment to certain principles. Those include "honest use of materials" and, of course, sustainability (which leads to generous use of glass for daylighting).

With more than 1,000 LEED accredited professionals, Perkins+Will has made U.S. Green Building Council standards part of its DNA. But Harrison says that the firm isn't naive enough to think that "we're done as long as we've followed the checklist. Our firm strategy is to go beyond LEED, especially on the energy front." To that end, the firm's micro-grant program offers employees the chance to spend up to 40 hours of their time—at firm expense—on building-related research.

Perkins+Will has accomplished all of this without a major overseas expansion. (Only three of its 23 offices are outside North America.) One reason is that sectors in which the firm is most active—including education and healthcare—are strong domestically. Harrison would welcome growth abroad, he says, but, "frankly, we've been busy with the work we have here." FRED A. BERNSTEIN

1



2

SMITHGROUP

THE VENERABLE practice of SmithGroup—formerly Smith, Hinchman & Grylls, and before that, a family business founded by one Sheldon Smith in 1853—knows a thing or two about surviving a downturn. After shaping Detroit's skyline in the 1920s, the firm got hollowed out by the Great Depression, shrinking from 250 people to six (four principals, an office boy, and a secretary). But university and automotive work pulled the company through—as did the repeal of Prohibition, which brought a string of distillery projects to its door.

The current recession has been less painful. SmithGroup president and CEO Carl Roehling, FAIA, and chairman David King, FAIA, attribute that to the firm's careful balance between diversity and specialization. SmithGroup concentrates on four primary markets: healthcare, higher education, science and technology, and workplace. Four is enough that they're never all down at the same time (or to the same degree), yet not so many that expertise is spread thin. "We've been very good at exercising self-discipline," King says.

Back in the early 1990s, Smith, Hinchman & Grylls had three offices and did 90 percent of its work in the Midwest. "There was a crossroads we saw: We were going to be a highly specialized local company, or we were going to become a national and international organization, doing the large, complex work we like to do," Roehling explains. No points for guessing which road the firm chose. From 1996 to 2001, the firm more than tripled its revenue via a series of strategic mergers. By the end of that period, it had more than 1,000 employees and was known as SmithGroup.

It was also during this period that SmithGroup crafted its first environmental policy and designed the Chesapeake Bay Foundation's headquarters in Annapolis, Md., the very first LEED Platinum building. The firm continues to design "deep green" buildings, but King credits its cultural embrace of sustainability to people—such as corporate sustainable design co-leaders Russell Perry, FAIA, and Greg Mella, AIA—rather than specific projects or checklists.

Unusually for a major American architecture firm, SmithGroup does less than 10 percent of its work overseas. That may well change, if the scale of one current overseas project is indicative: a 4.6 million-square-foot R&D facility in the city Changchun for China's First Automotive Works. Roehling is forthright about what is likely to happen over the next several years. "We're actively looking for ways to reposition the company for the future," he says. "That, in my mind, is having a global footprint." **AMANDA KOLSON HURLEY**



MODEL EMPLOYEE: Jamie Lee

33-year-old Jamie Lee is a newly licensed architect in SmithGroup's Washington, D.C., office. She was born in Taiwan and grew up in Northern Virginia. After receiving her M.Arch. in 2005 at the Harvard Graduate School of Design, Lee wanted to return home and "have some impact on the built environment of D.C."

Working in the office's learning studio, Lee has developed a passion for higher-ed design. "I like working with the client," she says. "The thing that's great about schools [is], they all have academic missions and visions. It's nice to provide them with a physical structure that embodies their vision."

11-30

RANK FIRM

11 MACHADO AND SILVETTI ASSOCIATES • Boston • Employees: 10–49
Net revenue per employee: 1567; Sustainable practices: 1787; Awards: 158

12 HOK • St. Louis • Employees: 900 or more
Net revenue per employee: 1179; Sustainable practices: 1415; Awards: 887

13 PAYETTE • Boston • Employees: 100–199
Net revenue per employee: 1382; Sustainable practices: 1570; Awards: 518

14 CANNON DESIGN • Grand Island, N.Y. • Employees: 900 or more
Net revenue per employee: 1178; Sustainable practices: 1149; Awards: 1139

15 FENTRESS ARCHITECTS • Denver • Employees: 100–199
Net revenue per employee: 1851; Sustainable practices: 1257; Awards: 333

16 GENSLER • San Francisco • Employees: 900 or more
Net revenue per employee: 1574; Sustainable practices: 1254; Awards: 563

17 H3 HARDY COLLABORATION ARCHITECTURE • New York • Employees: 10–49
Net revenue per employee: 1410; Sustainable practices: 1731; Awards: 221

18 KOHN PEDERSEN FOX ASSOCIATES • New York • Employees: 500–899
Net revenue per employee: 1440; Sustainable practices: 943; Awards: 945

19 WESTLAKE REED LESKOSKY • Cleveland • Employees: 100–199
Net revenue per employee: 1082; Sustainable practices: 1360; Awards: 837

20 RNL • Denver • Employees: 100–199
Net revenue per employee: 1038; Sustainable practices: 1626; Awards: 599

21 FRANK HARMON ARCHITECT • Raleigh, N.C. • Employees: Fewer than 10
Net revenue per employee: 1264; Sustainable practices: 1892; Awards: 86

22 THE MILLER HULL PARTNERSHIP • Seattle • Employees: 50–99
Net revenue per employee: 1063; Sustainable practices: 1626; Awards: 549

23 RBB ARCHITECTS • Los Angeles • Employees: 50–99
Net revenue per employee: 2102; Sustainable practices: 833; Awards: 288

23^{THE} PEARCE BRINKLEY CEASE + LEE • Raleigh, N.C. • Employees: 10–49
Net revenue per employee: 1180; Sustainable practices: 1570; Awards: 473

25 LMN ARCHITECTS • Seattle • Employees: 50–99
Net revenue per employee: 1175; Sustainable practices: 1360; Awards: 644

26 HGA ARCHITECTS AND ENGINEERS • Minneapolis • Employees: 500–899
Net revenue per employee: 1427; Sustainable practices: 1043; Awards: 684

27 NAC|ARCHITECTURE • Seattle • Employees: 100–199
Net revenue per employee: 967; Sustainable practices: 1837; Awards: 329

28 LEDDY MAYTUM STACY ARCHITECTS • San Francisco • Employees: 10–49
Net revenue per employee: 930; Sustainable practices: 1731; Awards: 464

29 TATE SNYDER KIMSEY ARCHITECTS • Henderson, Nev. • Employees: 10–49
Net revenue per employee: 973; Sustainable practices: 1837; Awards: 297

30 MITHUN • Seattle • Employees: 50–99
Net revenue per employee: 808; Sustainable practices: 1997; Awards: 297

Does its 10-place jump up the ranking from last year mean that merging with OWP/P has been successful for **Cannon Design**? The firm looks to be in good standing for next year's ranking, with its Power House project winning an AIA Honor Award for Interior Architecture (see page 182).

Down eight places from the 2010 ranking, **Frank Harmon Architect** is the only firm in this year's top 50 with fewer than 10 employees.

31-50

RANK FIRM

31

PGAL • Houston • Employees: 100–199

Net revenue per employee: 1202; Sustainable practices: 1892; Awards: –

32

ROSS BARNEY ARCHITECTS • Chicago • Employees: 10–49

Net revenue per employee: 890; Sustainable practices: 1942; Awards: 252

33

ADRIAN SMITH + GORDON GILL ARCHITECTURE • Chicago • Employees: 100–199

Net revenue per employee: 1297; Sustainable practices: 1576; Awards: 198

34

EYP ARCHITECTURE & ENGINEERING • Albany, N.Y. • Employees: 200–499

Net revenue per employee: 1140; Sustainable practices: 1781; Awards: 144

35^{ME}**GOULD EVANS** • Kansas City, Mo. • Employees: 100–199

Net revenue per employee: 845; Sustainable practices: 1360; Awards: 815

35^{ME}**EHDD ARCHITECTURE** • San Francisco • Employees: 50–99

Net revenue per employee: 975; Sustainable practices: 1837; Awards: 203

37

BOHLIN CYWINSKI JACKSON • Wilkes-Barre, Pa. • Employees: 100–199

Net revenue per employee: 1134; Sustainable practices: 624; Awards: 1256

38

NBBJ • Seattle • Employees: 500–899

Net revenue per employee: 1581; Sustainable practices: 1043; Awards: 387

39

BNIM • Kansas City, Mo. • Employees: 50–99

Net revenue per employee: 781; Sustainable practices: 1676; Awards: 518

40

ARCHITECTURAL RESOURCES CAMBRIDGE • Cambridge, Mass. • Employees: 50–99

Net revenue per employee: 1353; Sustainable practices: 1465; Awards: 144

41

JEFFREY M. KALBAN & ASSOCIATES ARCHITECTURE • Los Angeles • Employees: 10–49

Net revenue per employee: 1309; Sustainable practices: 1465; Awards: 171

42

AYERS SAINT GROSS ARCHITECTS AND PLANNERS • Baltimore • Employees: 100–199

Net revenue per employee: 1426; Sustainable practices: 1360; Awards: 158

43

CUNNINGHAM | QUILL ARCHITECTS • Washington, D.C. • Employees: 10–49

Net revenue per employee: 856; Sustainable practices: 1570; Awards: 486

44

SERA ARCHITECTS • Portland, Ore. • Employees: 50–99

Net revenue per employee: 960; Sustainable practices: 1731; Awards: 216

45

RICHÄRD+BAUER • Phoenix • Employees: 10–49

Net revenue per employee: 900; Sustainable practices: 1731; Awards: 257

46

JOHN RONAN ARCHITECTS • Chicago • Employees: 10–49

Net revenue per employee: 1076; Sustainable practices: 1626; Awards: 180

47

KMD ARCHITECTS • San Francisco • Employees: 100–199

Net revenue per employee: 1298; Sustainable practices: 1365; Awards: 171

48

JULIE SNOW ARCHITECTS • Minneapolis • Employees: 10–49

Net revenue per employee: 864; Sustainable practices: 1781; Awards: 185

49

LAKE|FLATO ARCHITECTS • San Antonio • Employees: 50–99

Net revenue per employee: 960; Sustainable practices: 1415; Awards: 360

50

SRG PARTNERSHIP • Portland, Ore. • Employees: 50–99

Net revenue per employee: 1078; Sustainable practices: 1570; Awards: 86

Ross Barney Architects was the third-highest-scoring firm in sustainable practices this year. William Rawn Associates and Mithun came first and second, respectively.

Baltimore-based higher ed experts Ayers Saint Gross recently launched the Campus Kit of Parts, an online gallery of campus elements such as fountains and quadrangles that encourages users to rate different examples.

METHODOLOGY AND MORE

Participating firms (120 eligible firms in total) submitted a questionnaire to the editors, who worked closely with a third-party research firm, Karlin Associates. All information was self-reported and most of it could not be validated independently. This year's ranking is based on 2010 financials and awards received in 2010. For a detailed explanation of methodology, plus tables of the top 10 firms in each of the three ranking categories and the overall ranking of the firms that came in 51–100, visit architectmagazine.com.



WILLIAM RAWN ASSOCIATES

IN THE INAUGURAL ARCHITECT 50 ranking in 2009, William Rawn Associates (WRA) found itself in the top spot. Since then, the Boston firm has kept busy, picking up not only new projects, but also a series of prizes, including a 2010 AIA Housing Award (for its residences at Swarthmore College) and a slew of honor awards last year from AIA New England and the Boston Society of Architects, helping to land WRA again near the front of the ARCHITECT 50 pack.

As anyone reading this magazine knows well, the economic climate has made it all the more difficult to grow an office. Years ago, to avoid the bust that's now assailing so many, WRA took an approach that turned out to be remarkably prescient: Don't fall for the boom. The 35-person firm maintains a self-imposed limitation of only five projects in active design at once. "There have definitely been times when we could have grown to a firm of 100 people, but we shied away from that, because the thing that was near and dear to us was design," explains Douglas Johnston, AIA, one of the firm's three principals.

Accordingly, WRA takes a farsighted approach to hiring, avoiding the project-by-project recruiting that fires off a turbulent staffing cycle. "This has kept us off the roller coaster," Johnston says. "We're not immune from economic realities," he concedes, "but we have remained strong throughout the recent maelstrom." The slow-and-steady approach does not just apply to human resources: Ultimately, the principals believe, it allows the firm to deliver the best design. "We're small enough that we don't have a deep corporate culture getting in the way of the design process, yet we're large enough to take on big projects," Johnston figures. "We are able to take on work of real consequence and scale—right now, we are simultaneously doing two \$100-plus-million projects—but with a size where I don't have to worry if I know everyone's name."

"Our process and organization is built on the principle of a meritocracy of ideas," says principal Clifford Gayley, AIA. Not only does this keep design quality high, the principals reason, it also allows for cultivation of the next generation of leaders (see sidebar on Samuel Lasky, AIA, above).

When William Rawn, FAIA, founded the firm in 1983, he was intent on building a generalist practice, one that could take on different program types, scales, contexts. Given that the firm has recently designed libraries, urban university buildings, a federal courthouse in Cedar Rapids, Iowa, a 234-room W Hotel and Residences in Boston, and a synagogue in Wellesley, Mass., he seems to have done just that. JOHN GENDALL

3

MODEL EMPLOYEE:

Samuel Lasky

Forty-two-year-old Samuel Lasky, AIA, joined William Rawn Associates (WRA) in 1998, having earned his stripes at the Harvard Graduate School of Design and Yale University, and with stints in a few other architecture offices. Because of WRA's team-based, generalist approach, the environment was such that Lasky could freely contribute design ideas. Then, as the office took on program types it had not yet worked with, Lasky set out to fill the gaps.

"When the Cedar Rapids courthouse came in, I learned everything there was to learn about courthouses," Lasky says. He brought that same researcher's spirit to projects including the W Hotel and Residences in Boston and Temple Beth Elohim in Wellesley, Mass.

Outside the firm, Lasky's contributions have not gone unnoticed: He won the AIA Young Architects Award in 2008. Now, as a senior associate, he is able to mentor younger designers. "Our designs involve an entire team," he says. "The ideas may come from junior staff who are a few years out of school and who bring a different expertise. We want that to happen."

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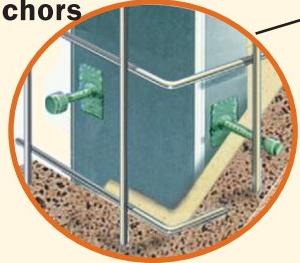
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→DESIGN

JAKOB + MACFARLANE	202
JOHN RONAN ARCHITECTS	210
ZAHA HADID ARCHITECTS	216
RAFAEL VIÑOLY ARCHITECTS	228
FREE	238

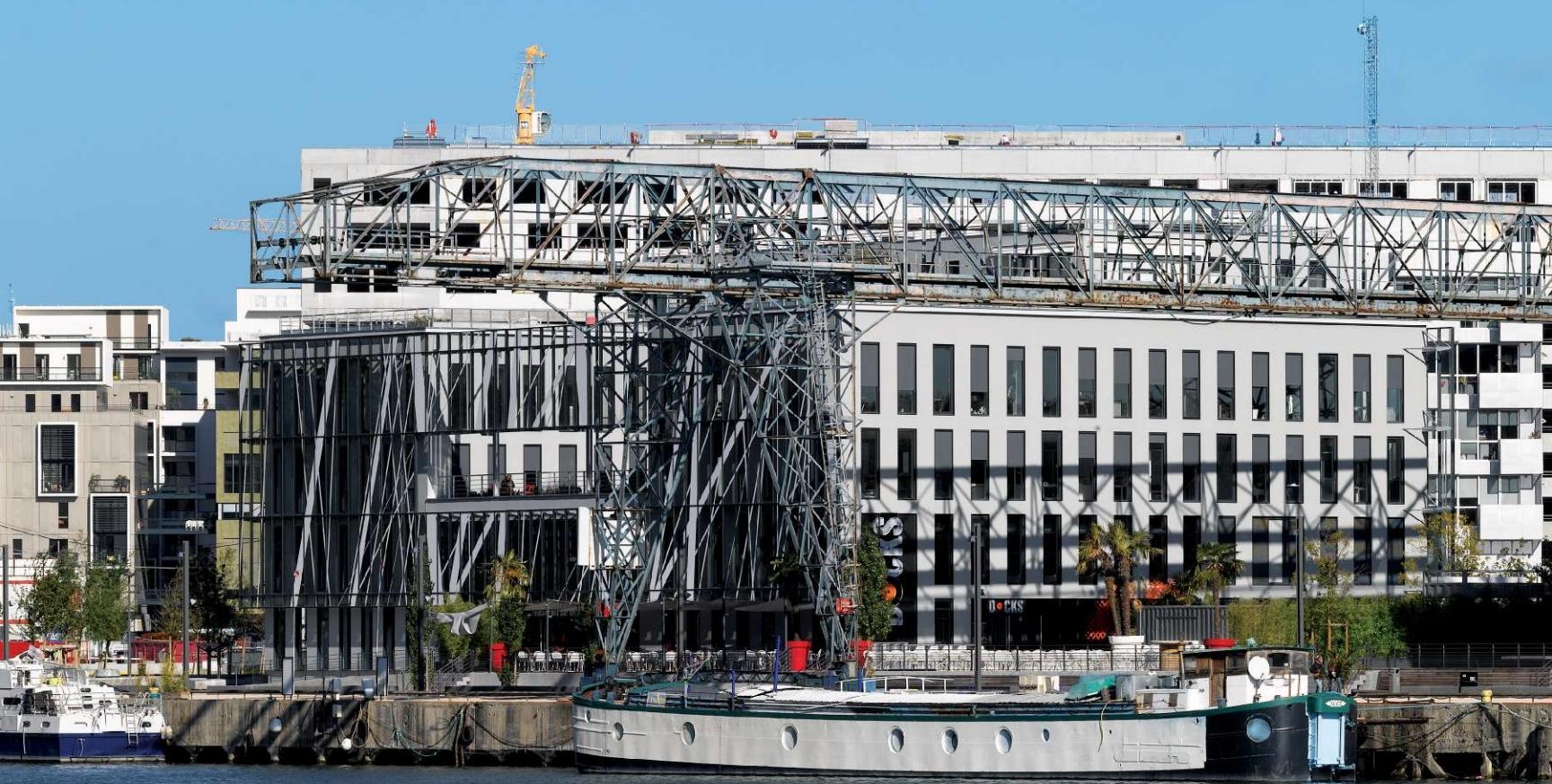
ORANGE CUBE

LYON, FRANCE
JAKOB + MACFARLANE

TEXT BY MARK LAMSTER
PHOTOS BY ROLAND HALBE,
UNLESS OTHERWISE NOTED

IT'S SAFE TO SAY: No one is going to have trouble finding the Orange Cube. Then again, it's hard to miss a seven-story, Day-Glo block of architectural Swiss cheese that looks as if it's been slammed by the Lord's own shuttlecock. Designed by the Paris-based firm of Dominique Jakob and Brendan MacFarlane, the duo best known for the Centre Pompidou's blobby rooftop restaurant, this most unconventional building sits boldly along the Quai Rambaud in the Confluence, a formerly derelict industrial zone of Lyon where the rivers Soane and Rhone meet.

The idiosyncratic project is, surprisingly, not a museum or cultural institution, but a privately financed commercial property. "I think, as a developer, it's essential to always be visionary," says Jean-Christophe Larose, chairman of the Cardinal Group, a part of SCI Salins. "For me the equation between developer and architect will always be win-win. The moment I saw the project, I fell in love with it." He loved it so much, in fact, that he decided to take the top two floors as the headquarters for his company. The ground floor and mezzanine spaces are showrooms for French design retailer RBC. The remaining three floors are leased office space.





The Orange Cube is sited in Lyon's waterfront warehouse district (this image), in an effort to draw the city's attention to this less-trafficked area of town. The void that pierces the building (right) begins at the northwest corner and moves up through the roof, framing views of the river for workers in the offices within; the void is echoed by another cut into the building's southwest corner (bottom left) that reveals an entrance. The building's perforated aluminum skin forms the enclosure (bottom right) for the sixth-floor terrace.



The cube's Pantone-like color scheme and façade of punctured and laser-cut aluminum (see "Toolbox," page 208) sets the building apart from its neighbors, including an old concrete salt warehouse (to which the cube is attached), known locally as the Trois Arches for its triple-arched facade.

"We were very aware of changing an area that was a depressed kind of no-man's-land and giving it a new energy," says MacFarlane, a native of New Zealand with architecture degrees from Harvard and SCI-Arc. As he would have it, this change would require something more than just creating an iconic building. The entire focus of the city, which is built around a peninsula formed by the Soane and Rhône, would need to shift from its traditional Italianate squares to the largely untapped resource of its waterfront. "You have a new Lyon that is looking out on the river and valorizing this new urban experience, this new urban edge," he says.

Those views are privileged by the project's bravura formal element, an immense conical void that punctures the façade at its northwest corner and extends up through the roof, opening the interior out toward a bend in the river. "The cone is not only important when you're working in the building, but also when you're in a boat or you're walking along a promenade looking back into it," MacFarlane says. "Really what we wanted to do was open up this experience for people living in the city of Lyon. It makes the building much more than an object."

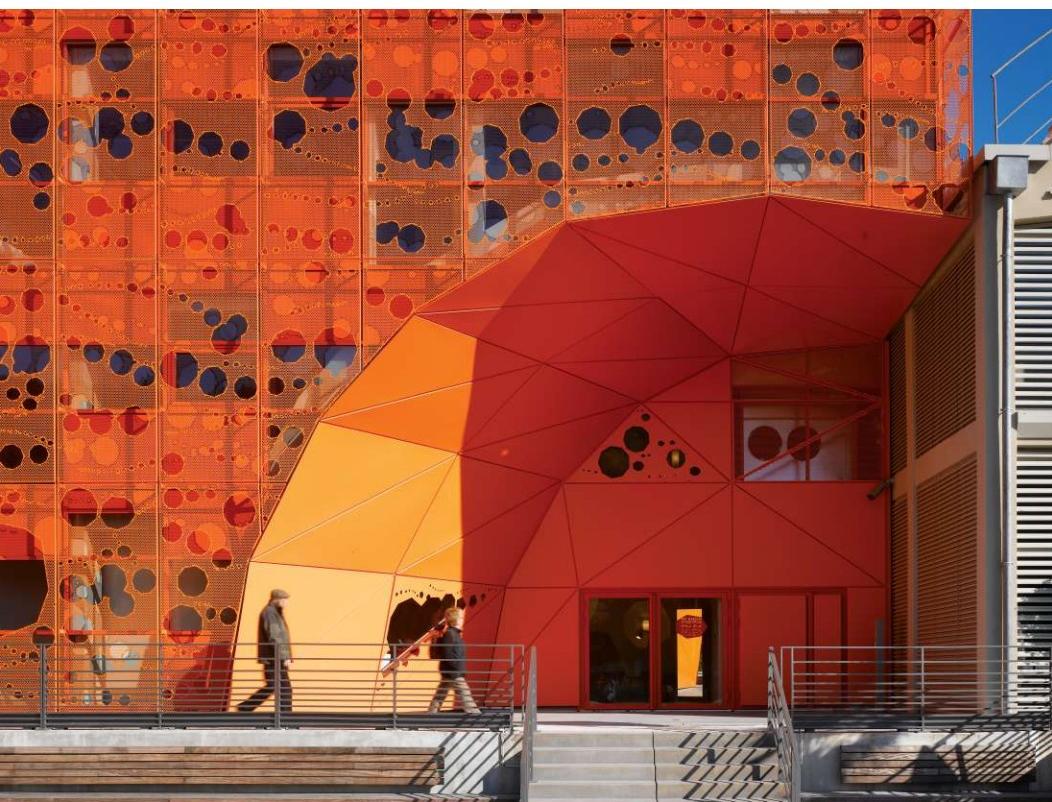
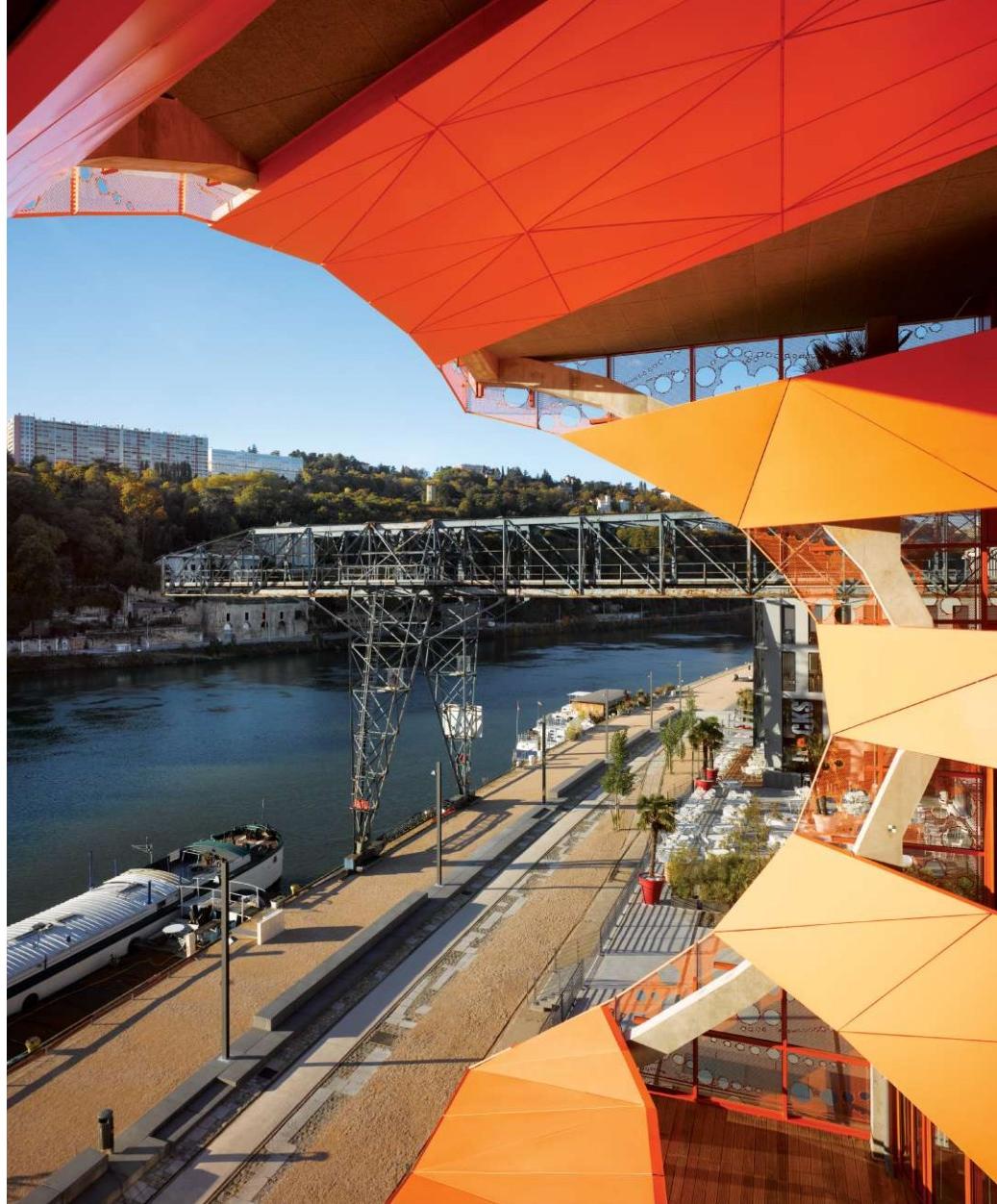
The purpose of the cone is not merely visual. During the summer months, the internal atrium formed by the cone's void pulls in cool air

off the river, and then funnels it into the building, a natural convection that reduces the demand for air conditioning. It also acts as a light well, allowing the architects to maximize the large floor plate of the cube, which fills the maximum zoning allowance for the site.

Transforming the cone's digitally rendered, complex forms from virtual space, where forces of gravity do not apply, to the real world, where materials bend and warp and never seem to line up properly, proved a considerable challenge and constant learning process for the architects. "No matter how precise you are [in planning], you need to work with a surveyor numerous times throughout the construction process in order to get something perfect," MacFarlane says.

Perfect or not, the dramatic space of the void so appealed to Larose that he initially wanted to install a glass floor in the space and place a meeting table in the center, for drama—a plan that did not sit well with the architects. "It's the one big formal move, so if we're going to fill it up with program ... oof," says MacFarlane, who convinced his client to forego the idea. "If we had blocked it [the cone], it would be a completely different project." Larose now agrees that the project is "ultimately much better" with his conference room tucked away inside.

Will the Orange Cube fulfill its makers' grand ambitions to fundamentally change the way the Lyonnais understand their city? That remains to be seen, perhaps, and in any case is a great deal to ask of a single office building. Nevertheless, there can be no question that the architects have achieved their mission to draw attention to the waterfront.



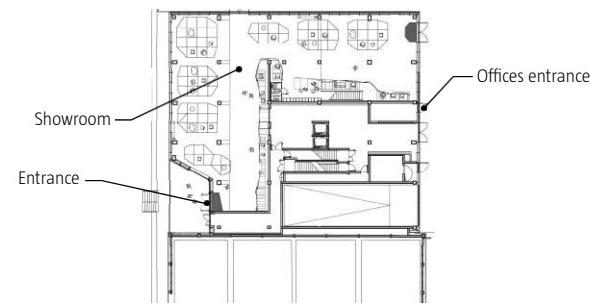


The program of the Orange Cube is purely commercial: The ground floor and mezzanine level are occupied by furniture retailer RBC (above), topped by five levels of office space. On the ground floor and mezzanine, furniture is displayed in wall units (bottom right) that feature voids similar to the ones that cut through the building structure. On the upper office floors (bottom left), glass partitions and slightly reflective poured-in-place concrete screed flooring help natural daylight penetrate deep into the floor plate. Perimeter office spaces (bottom middle) feature views out through the building's primary aluminum-panel-and-glass façade as well as through the perforated screen.

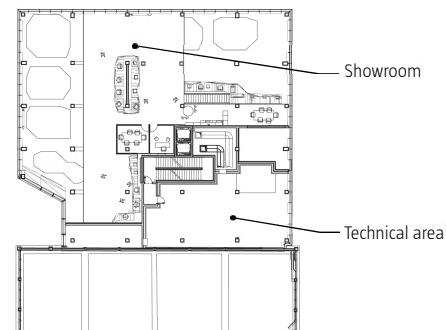




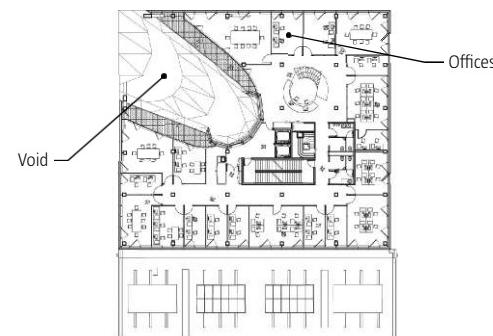
Ground-Floor Plan



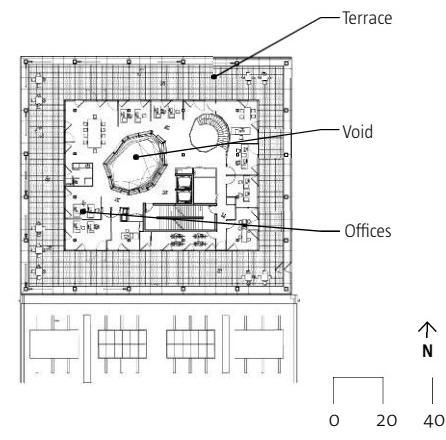
Mezzanine-Level Plan



Fifth-Floor Plan



Sixth-Floor (Terrace) Plan



TOOLBOX: PERFORATED SKIN

The Orange Cube actually has two façades, and yes, they're both orange. The outer façade, or "veil," is a screen of punched aluminum panels—each 4 millimeters thick and roughly 1.3 meters wide by 3.33 meters tall—designed to shield the building from the sun. Though the panels appear almost solid when viewed from a distance or at an angle, they are in fact just 35 percent opaque, and from close up are effectively translucent. "You still see the whole environment incredibly well," architect Brendan MacFarlane says. "It's like wearing a pair of sunglasses. It has the effect of making the vision more sharp, more precise."

The architects created 25 standardized panels that are repeated to form the veil, though specific panels had to be designed for the ground and top levels to account for programmatic requirements such as entries and viewing areas. Each panel was laser-cut, to give the screen its large, bubble-shaped apertures, and punch-pressed, to create the "micro-perforations" that give it translucency.

After cutting, the panels were "thermo-lacquered" in their distinctive orange hue, a technique that entailed spray-coating the panels with paint and then baking them in ovens, similar to the process of curing enamel. The entire process was completed locally.

Once on site, each perforated panel was attached to a steel frame set 25 centimeters from the building's primary façade, itself a combination of glass and metal panels. Like those on the outer screen, these internal panels are also painted orange, but in a slightly darker shade. "It isn't one orange, it's two oranges," MacFarlane says. "There's a kind of depth, a kind of vibration that happens."

Project Credits

Project Le Cube Orange, Lyon, France

Client Groupe Cardinal + SEM Lyon Confluence

Architect Jakob + MacFarlane, Paris—Dominique Jakob, Brendan MacFarlane, Sébastien Gamelin, Gregory Bismuth

Structural Engineer RFR Structures

Electrical Engineer ALTO Ingénierie

Cost Planning Bureau Michel Forgue

Façade Consultants RFR GO+

Acoustic Consultants AVEL Acoustique

Size 67,640 gross square feet (6,284 square meters)

Cost \$17.4 million (€12 million)

Materials and Sources

Acoustical System Eophon Group (Akutex glass-fiber acoustical panels) eophon.com

Concrete Poured-in-place concrete structure with prefabricated concrete floors

Exterior Wall Systems Wicona (aluminum curtainwall with both glass and metal insulated panels) wicona.com; RMIG (perforated aluminum painted panels) rmig.com

Flooring Poured-in-place concrete screed

Glass Soliver (double-glazed laminated low-E glass with solar protection)

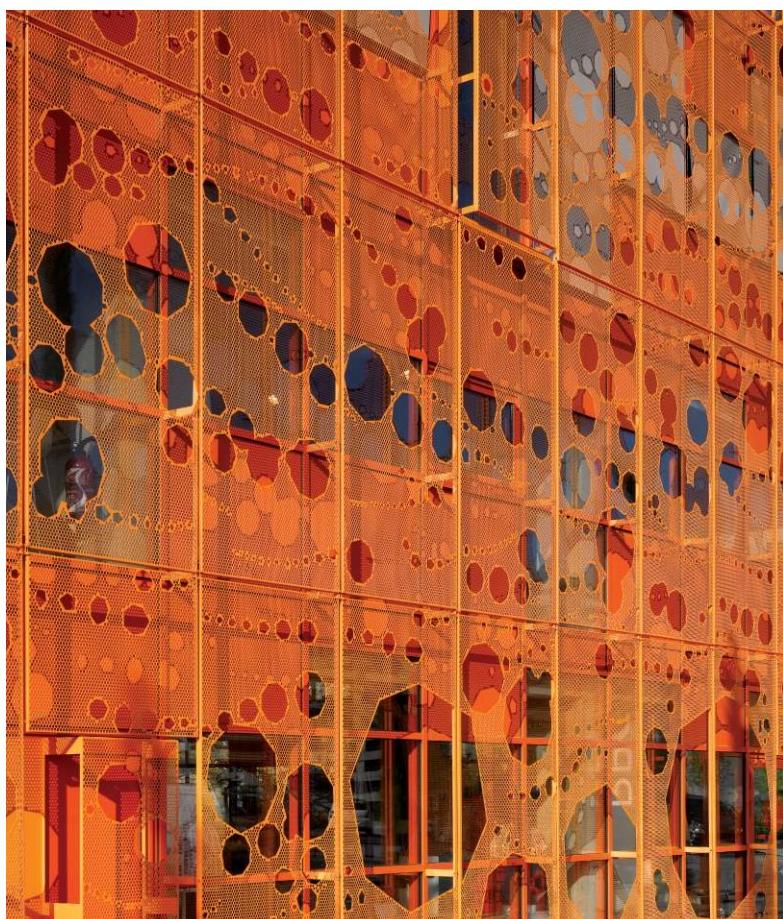
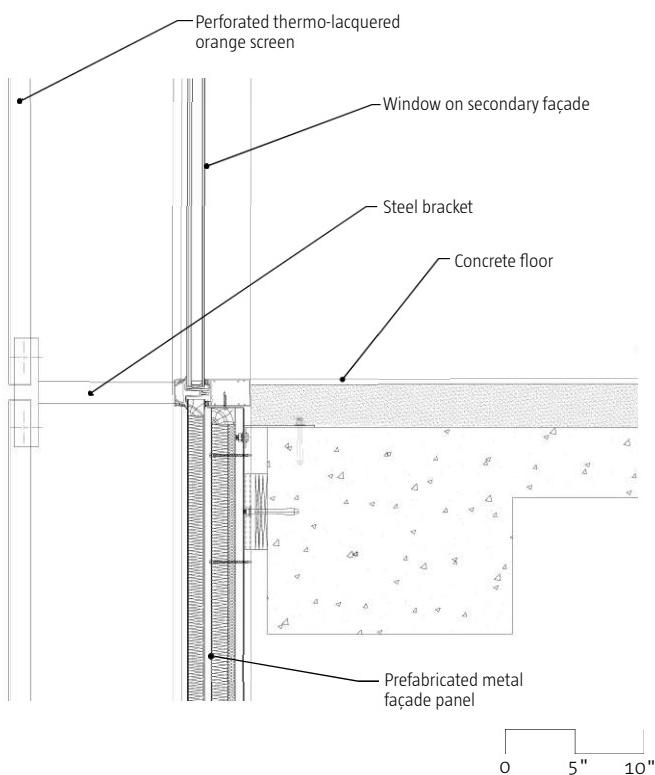
Lighting Philips (Celino fixtures) philips.com; Switch-mode exterior LED Lighting

Renewable Energy Systems Groundwater heat pump; high-efficiency heat-recovery air conditioning

Roofing Bilateral elastomeric sealing with wood-slab protection (oak)

Windows, Curtainwalls, and Doors Wicona (aluminum frame) wicona.com

Façade Detail Section





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CHAPEL OF ST. IGNATIUS OF LOYOLA

CHICAGO

JOHN RONAN ARCHITECTS

TEXT BY EDWARD KEEGAN, AIA
PHOTOS BY NATHAN KIRKMAN

CHICAGO-BASED ARCHITECT JOHN RONAN, AIA, has a strong interest in the materiality of architecture, and his design for the coed Christ the King Jesuit College Preparatory School on the city's gritty West Side is a case in point. The 94,000-square-foot building's exterior is a pulsating pattern of fiber-reinforced cement panels—in varying sizes and shades of gray—which give the building a strong visual identity using an inexpensive product. But on the first floor of the easternmost end of the L-shaped building, the rhythm of these panels is disrupted by another humble material: glass block. Using different sizes and shapes of the block to form a patterned wall, Ronan uses a simple materials palette to clearly set this space apart.

Behind the translucent walls is one of the Jesuit institution's key spaces: the Chapel of St. Ignatius Loyola. The 45-by-67-foot room seats 200—enough to hold any single class from the school's four-year program—and is surrounded by three walls of daylight filtered through the floor-to-ceiling glass block. These walls are particularly bright during the morning hours when it's most heavily

used. "We had to activate the space," Ronan says of his material choice. The wavy face of the material—combined with an intricate wall pattern formed from six different sizes and shapes of block—gives the room an abstract quality that still imbues it with a level of sensuality, according to Ronan. A three-story light well creates the illusion of a skylight in the first-floor space, activating the ceiling plane with light as well. The chapel's fourth wall is made of the same cement-board paneling that clads the exterior of the building, rendered in a monochromatic dark gray and mottled with inscribed crosses. Inside the wall cavity, a black acoustical liner helps absorb sound; stretched-fabric panels on the 11½-foot-tall ceiling mitigate the otherwise hard surfaces of the space.

Worshippers sit in simple chairs—the only pieces in the chapel that are catalog-ordered. The chairs are not fixed and the relatively lightweight liturgical furnishings allow for a flexible arrangement that permits various prayer and sacramental services beyond the Mass. The architect-designed furnishings—including the birch





The Chapel of St. Ignatius of Loyola at Christ the King Jesuit College Preparatory School in Chicago is illuminated by the natural light that filters through three walls of varying-sized glass block.

wood altar, two candleholders, ambo, tabernacle, and credence—are stark, but elegant. A sandblasted stainless steel font by Ronan marks the entrance to the space.

The floor is a simple but durable polished concrete, carefully finished to reflect the refracted light that pours in through the glass-block walls. The surface's only punctuations are a series of field-cut joints and an inset stainless steel cross that marks the center point of the chapel. The effect is compelling—making natural light the dominant presence in the room, unencumbered by decorative elements.

Roman Catholic worship spaces can draw on 20 centuries of precedent. Here Ronan, who himself is Catholic, draws on monastic traditions that direct worshippers to silent reflection. The chapel's namesake and founder of the Jesuit order, St. Ignatius of Loyola, stressed quiet discernment in his *Spiritual Exercises*, which have been a strong part of Jesuit education for four-and-a-half centuries.

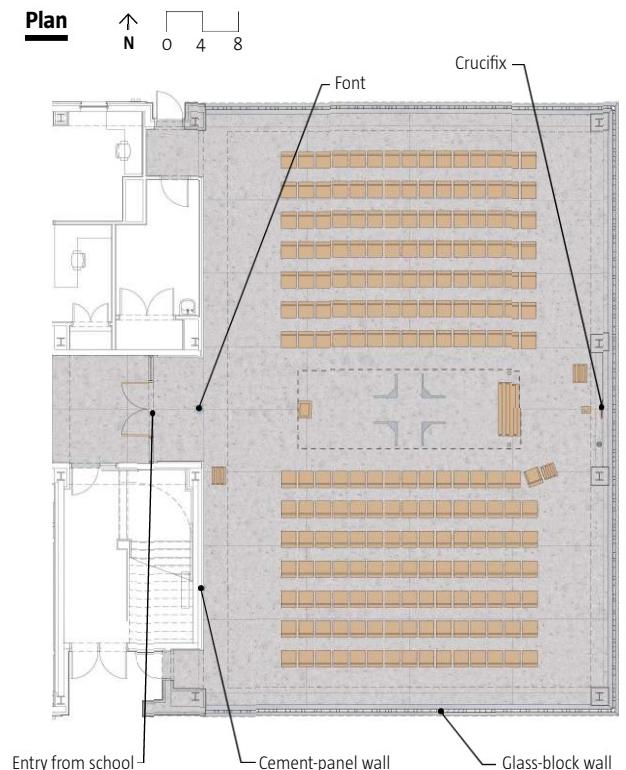
A crucifix hangs at the east end of the chapel, which is also the termination of the central axis that cuts through the long side of the larger school building. Ronan creates the cross from two stainless steel cables that span horizontally from column to column and vertically from floor to ceiling. The thinness of the material contrasts sharply with the life-size scale of the overall symbol, in a subtle play between the abstract and the real. The carved corpus that hangs from these cables has features that reflect the dominant ethnicity of the student body.

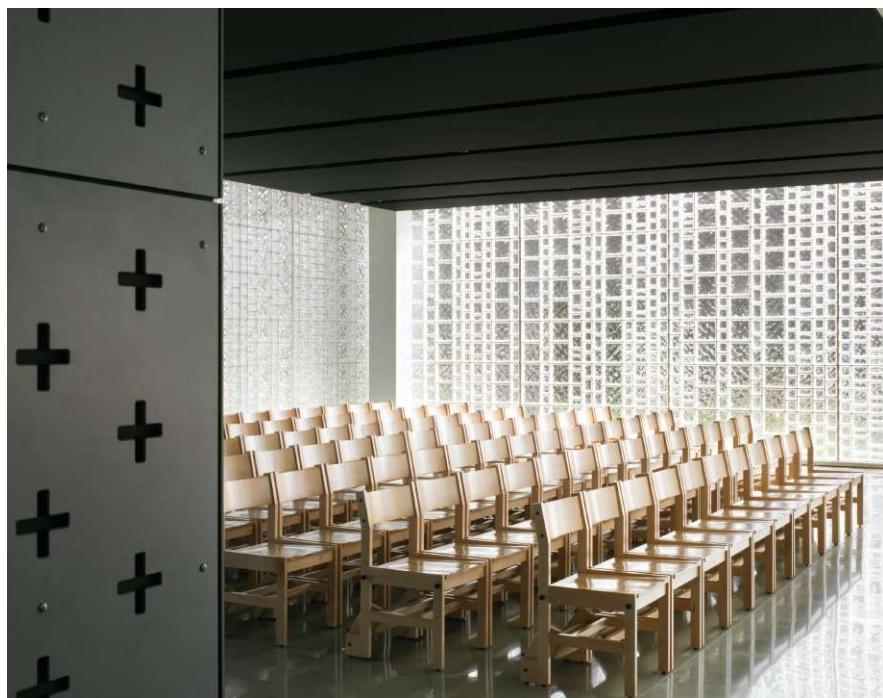
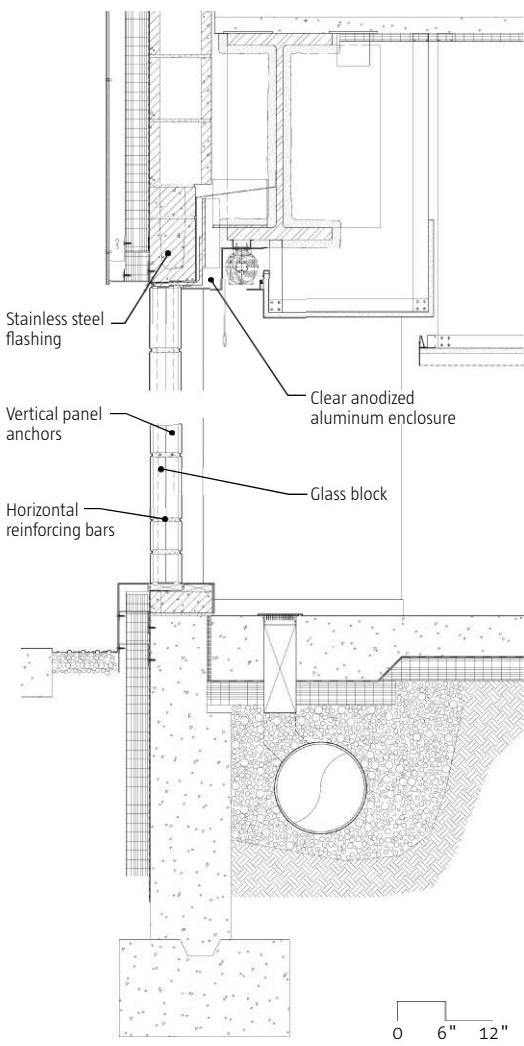
Only about 10 percent of the school's students are Catholic, according to president Rev. Christopher J. Devron—but most are from homes with a Christian faith background. The Jesuit educational mission promotes the formation of "men and women for others"—and the connections drawn between the chapel's design, and the principles of Ignatian spirituality that inspired it, aid in developing these ideals in the students regardless of their background. "You watch the kids and the light on their faces," Devron says. He uses the room's filtered daylight as a teaching opportunity while preaching in the space. "Each of you has a candle inside of you," he tells his students. "Shine your own light."

The teenagers who study at Christ the King Jesuit College Preparatory School have busy lives. They come from generally overcrowded and economically disadvantaged homes where "quiet time" is a rare commodity. The school's curriculum is structured to provide a path toward future success, but the chapel in particular allows each student to find a refuge from everything else. "What can we discern when we pray in silence?" Devron asks his students. One of them characterized her experience in Ronan's spare and light-filled space by saying, "It helped me find my inner self." A powerful lesson from a simple space.

The chapel, with its glass-block walls, anchors the east end of the school building (bottom right). Inside, natural light filters in and reflects off of the polished concrete floors (right). In contrast to its three glass walls, the chapel's fourth wall is clad in cement panels (top) with nearly 4-inch-square, cross-shaped perforations.





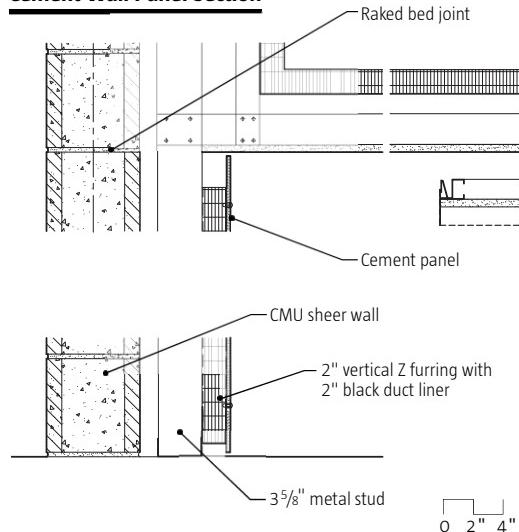
Glass-Block Section**Project Credits**

Project Christ the King Jesuit College Preparatory School, Chicago
Client Chris the King Jesuit College Preparatory School
Architect John Ronan Architects, Chicago—John Ronan, AIA, (lead designer); Gregory Pinter, AIA, (project architect); Evan Menk (technical coordinator); Marcin Szeft, Anna Ninoyu, Josh Bergman, Lane Van Buren, Elizabeth Kraft (project team)
Interior Designer John Ronan Architects
Mechanical/Electrical Engineer dbHMS Engineers
Structural Engineer C.E. Anderson & Associates
Civil Engineer Terra Engineering
General Contractor Norcon
Landscape Architect Terry Gruen Design Associates
Size 94,000 square feet
Cost \$22 million

Materials and Sources

Acoustical System Epic Metals Corp. (acoustic roof deck, gym) epicmetals.com
Adhesives, Coatings, and Sealants Dow Corning Corp. dowcorning.com
Appliances AGA Marvel lifeluxurymarvel.com
Building-Management Systems and Services Trane trane.com
Carpet Interface Flor interfaceflor.com
Ceilings Armstrong armstrong.com; Tectum tectum.com; USG Corp. usg.com
Concrete The Spancrete Group (precast plank floors) spancrete.com
Exterior Wall Systems Swisspearl (Eternit fiber-reinforced cement panels) swisspearl.com
Fabrics and Finishes Guilford of Maine (acoustic panel fabric) guilfordofmaine.com
Flooring John Caretti and Co. (concrete ground and polished floors, terrazzo) krezgroup.com; Robbins Sports Surfaces (gymnasium floor) robbinsfloor.com; Armstrong armstrong.com
Furniture The Hon Co. hon.com
Glass Viracon viracon.com

Gypsum USG Corp. usg.com
HVAC Titus (air-handling units, grilles, diffusers) titus-hvac.com
Insulation Owens Corning owenscorning.com
Lighting Control Systems Sensor Switch sensorswitch.com
Lighting Philips Lightolier lightolier.com; Axis Lighting axislighting.com
Masonry and Stone Oldcastle BuildingEnvelope (CMU) oldcastlebe.com, northfieldblock.com; Spectra-Glaze (glazed CMU) spectraglaze.com
Metal Alucobond (aluminum composite panels) alucombe.com
Millwork Cain Millwork cainmillwork.com; Kewanee Scientific Corp. (science lab millwork) kewanee.com
Paints and Finishes Sherwin-Williams Co. sherwin-williams.com
Plumbing and Water System American Standard (fixtures) americanstandard-us.com; Zurn Industries zurn.com
Roofing Sika Sarnafil usa.sarnafil.sika.com
Seating Sheridan Seating (bleachers) sheridangymnasium.com
Site and Landscape Products Weston Solutions (GreenGrid) greengridroofs.com; Wausau Tile (concrete benches) wausautile.com; Landscape Forms (bike racks) landscapeforms.com; Kafka Granite (stabilized gravel) kafkagranite.com
Structural System Garbe Iron Works (structural steel)
Wallcoverings Forbo Bulletin Board (tackable surface) forboflooringna.com
Walls Daltile (ceramic tile) daltile.com
Windows, Curtainwalls, Doors Oldcastle BuildingEnvelope (windows) oldcastlebe.com; Pittco Architectural Metals (storefront) pittcometals.com; Ingersoll-Rand Steelcraft (exterior metal doors) steelcraft.com; VT Industries (interior wood doors) vtindustries.com; Eggers Industries eggersindustries.com

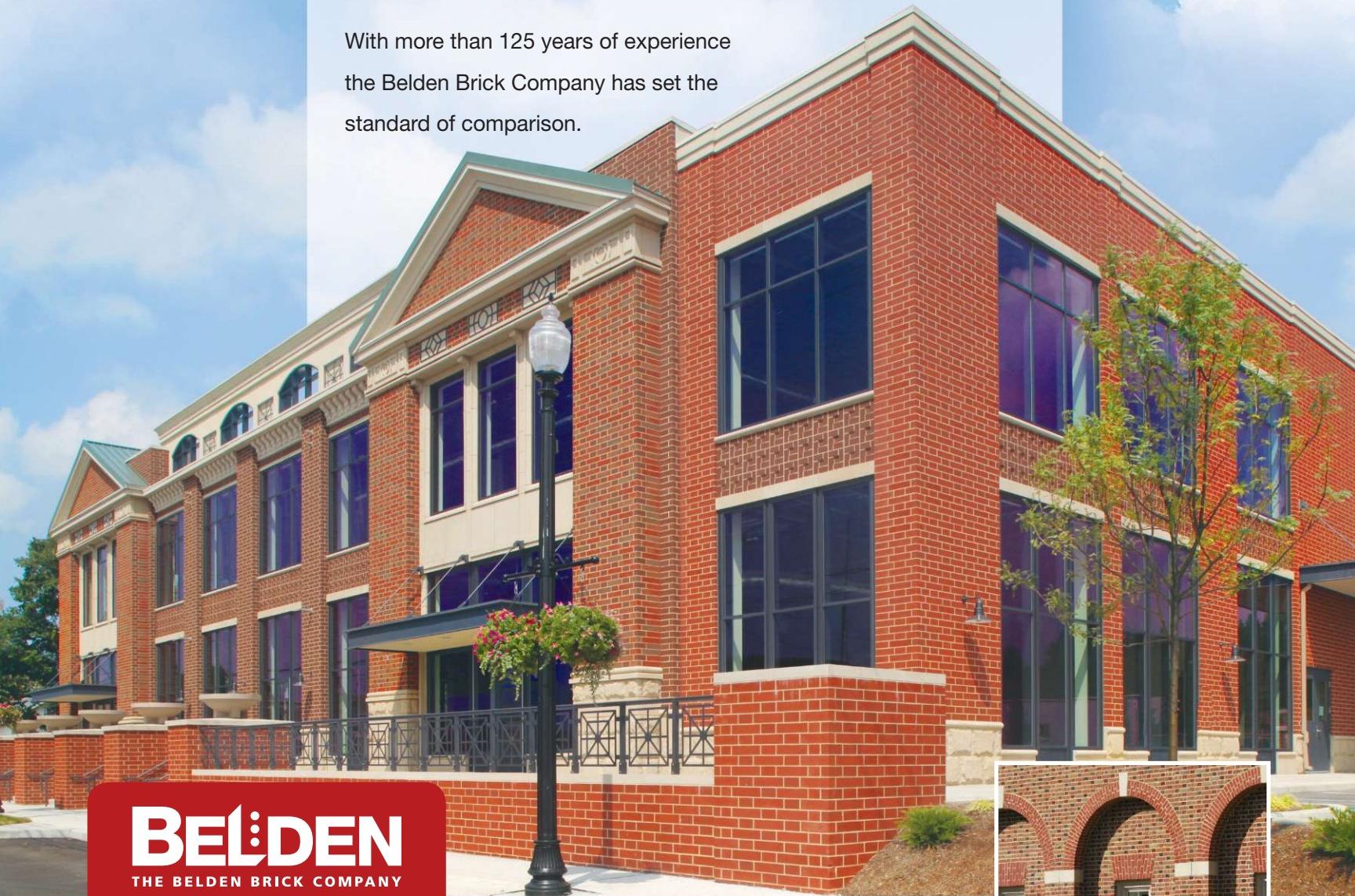
Cement-Wall Panel Section

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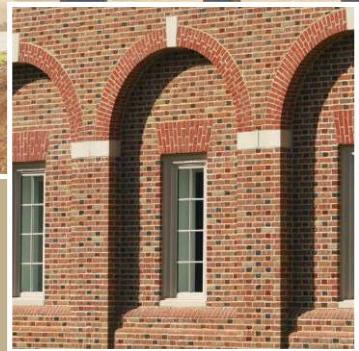
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GUANGZHOU OPERA HOUSE

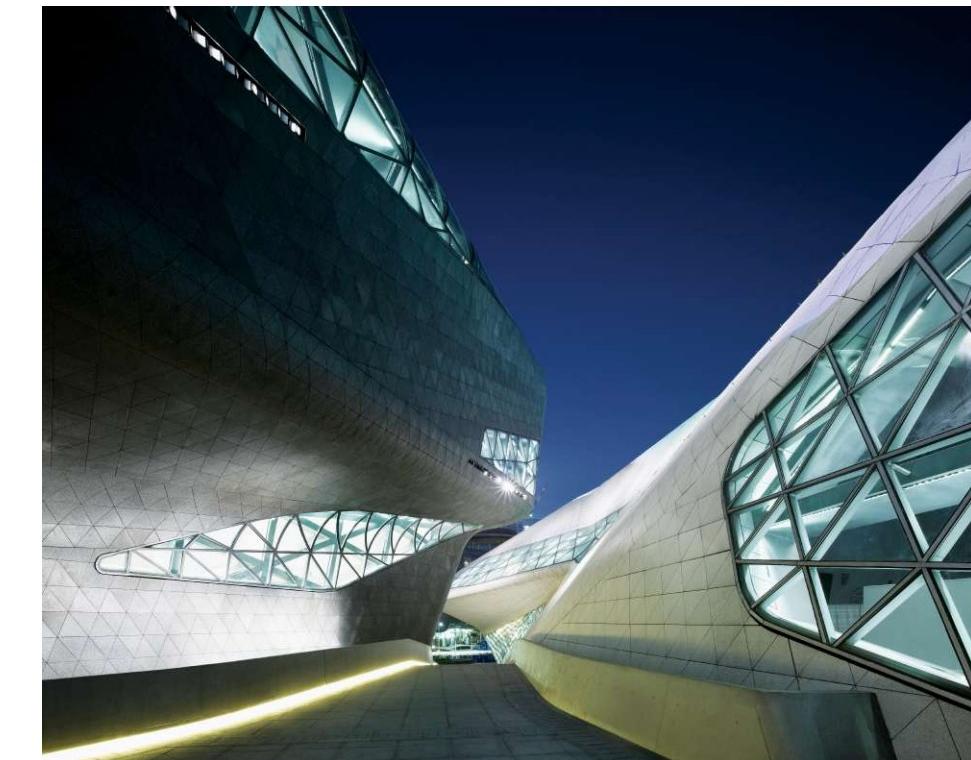
GUANGZHOU, CHINA
ZAHA HADID ARCHITECTS

TEXT BY JOSEPH GIOVANNINI
PHOTOS IWAN BAAN, EXCEPT WHERE NOTED



DESIGN→ HADID





ZAHAA HADID, Hon. FAIA, follows up 2009's National Museum of the XXIst Century Arts in Rome (aka the MAXXI) with the largest and most complex example of her new generation of primarily computer-generated designs: the Guangzhou Opera House.

Hadid won the international competition for the project in 2002 by appealing to the inner poets of Chinese officials. Paraphrasing her analogy, two faceted buildings—the 1,804-seat opera and a 443-seat multipurpose theater—are smoothed by a proverbial stream that erodes the surrounding plazas into an urban landscape of valleys, ridges, and pools.

"The two buildings are embedded in an artificial landscape impregnated with program and spaces," explains Patrik Schumacher, who—along with fellow project director Woody K.T. Yao—designed the project with Hadid.

Hadid's buildings have sometimes been accused of standing aloof, but in fact she conceives her structures urbanistically: The scope of her brief and this large transitional parcel between the city's financial district and the Pearl River allowed her to build at a scale that addresses her theory that a building need not be distinct and separate from the surrounding city, that the two can structure and activate one another. At Guangzhou, the buildings and cityscape connect via pedestrian and vehicular ramps and a complex multilevel topography.

The buildings were not conceived planimetrically, with notions of front, back, and sides, but rather were modeled dynamically in 3D, so the resulting buildings and landscape are omnidirectional. Visitors approach the site and buildings from several directions and on several levels by vehicular and pedestrian roads ramping through long pools of water. The rising and lowering ground planes contain restaurants, offices, stores, and meeting rooms.

Outside, the buildings are defined by their faceted structural skin, covered in triangular tiles made of glass and white and black granite. The skin combines parametric geometry with traditional methods, such as the sand-casting of the main structural steel nodes, and it is vaulted off of a separate, interior volume of concrete that houses the opera theater.

The lobbies are voluminous, column-free public rooms. Terraces and staircases cantilevering from the theater volume provide a grand architectural promenade and a stage for the audience itself. The lobbies wrap most of the hall so that audiences can circumambulate the theater.

The sweeping staircases and sculpted terraces of the foyer in the main volume give way to the auditorium, where curving balconies—designed to

The Guangzhou Opera House is a complex of two buildings: the main 1,804-seat theater (top, at left) and a 443-seat multipurpose space (top, at right). Hadid created several approach paths (far left) in an effort to connect the site to the city and allow multiple points of entry. The paths continue through the site (left) and between the two buildings, in a circulation network dotted by pools and plazas.

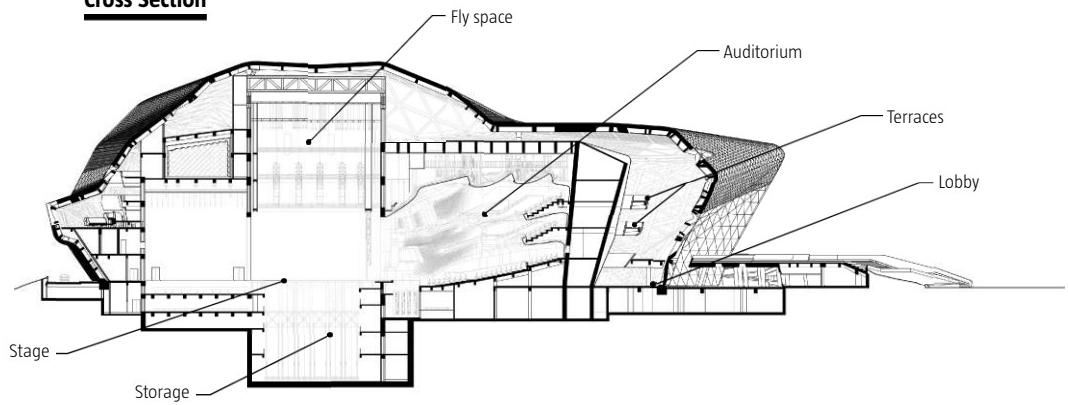
BOTTOM RIGHT AND BOTTOM LEFT: CHRISTIAN RICHTERS



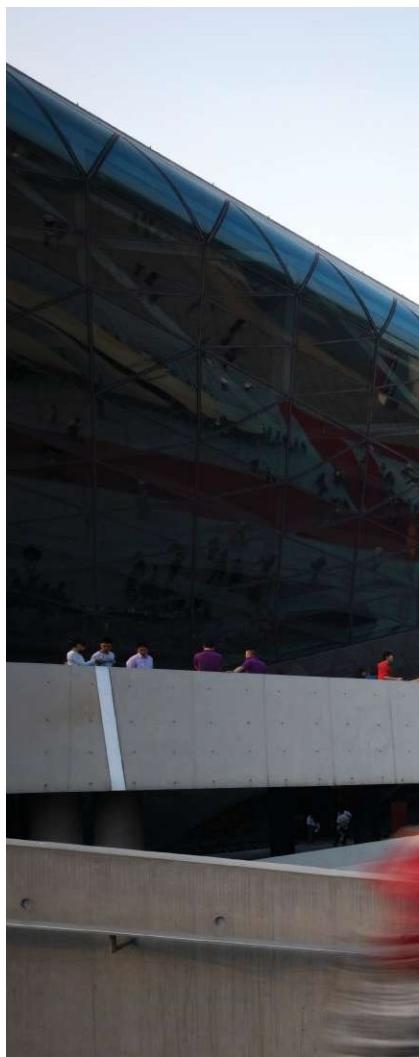
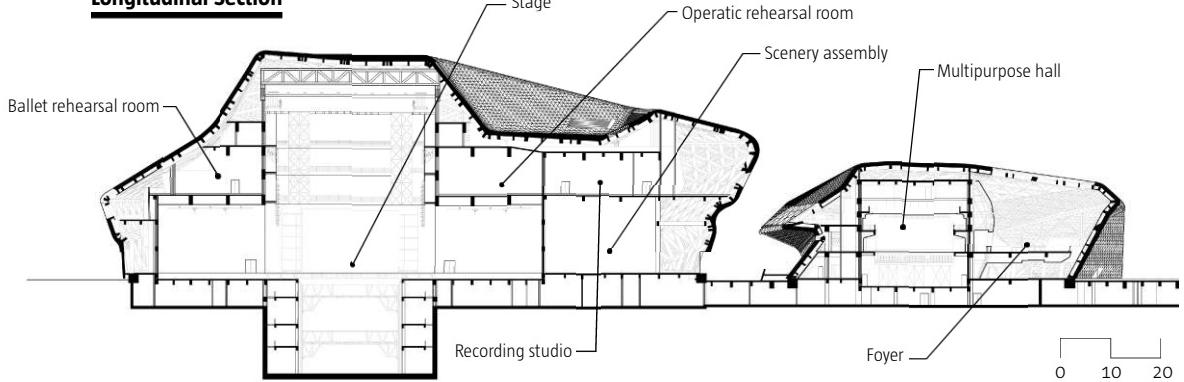
Supported by a steel framework designed in Rhino 3D, the structural skin (this image) features a series of triangular panels—white and black granite (75,422 pieces in all) and glass. Public pathways and plazas on multiple levels (bottom) encourage people to interact with the architecture during nonperformance hours.

BOTTOM RIGHT: CHRISTIAN RICHTERS

Cross Section



Longitudinal Section





fragment the sound acoustically and to assure sight lines—emerge smoothly from walls, forming continuous surfaces within what Schumacher calls the “balanced asymmetry” of the auditorium. Here, Hadid refines the vineyard terracing first used by Hans Scharoun in the visually lyrical Berlin Philharmonie in 1963. Overhead, an installation of 4,000 LED fixtures dots the ceiling.

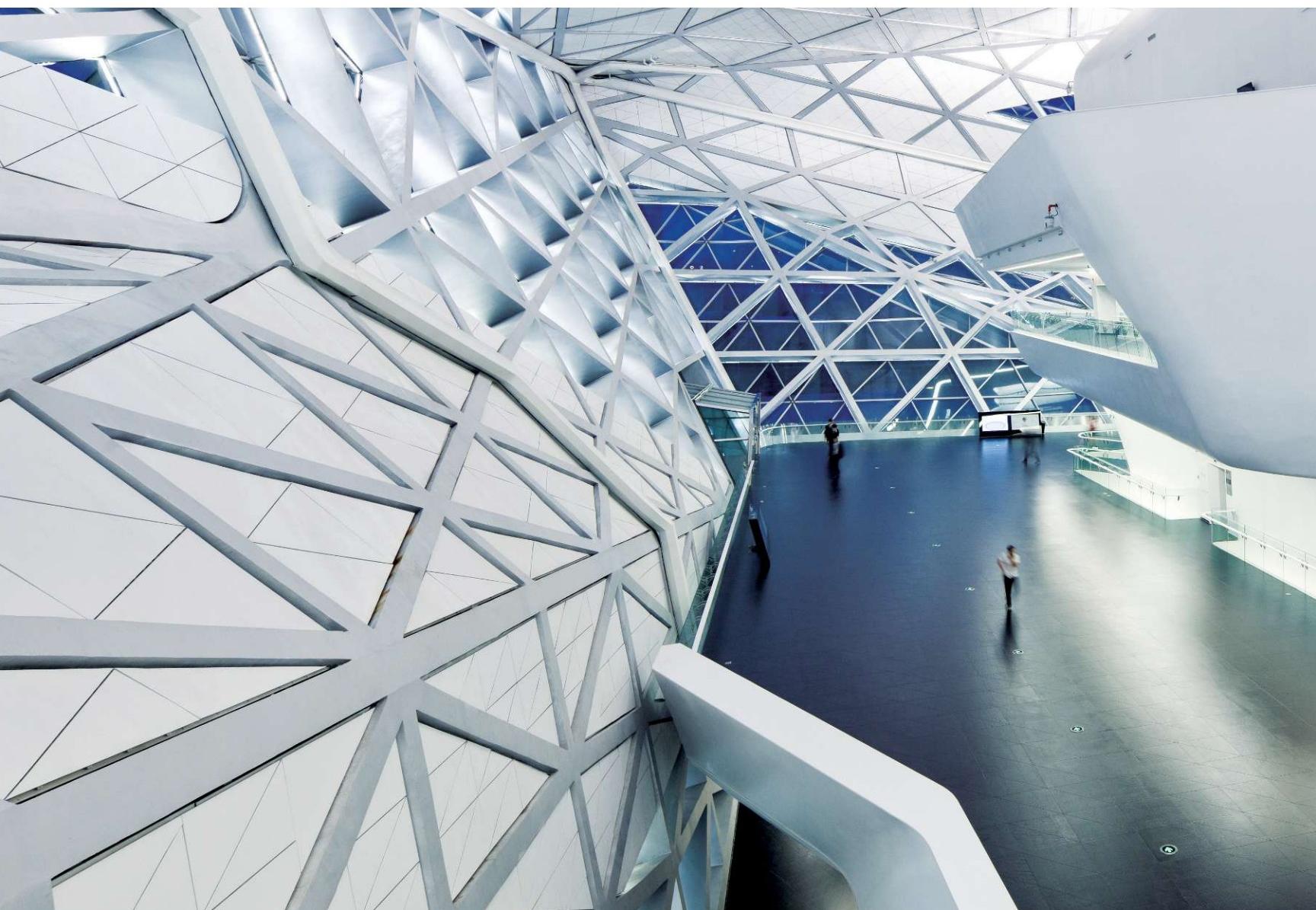
Behind the proscenium stage, the support functions are housed in an orthogonal matrix of rooms that do not conform to the confines of a neat, regular Euclidean package. Instead, the irregular shell outside adapts to the programmatic and volumetric needs of the back-of-stage functions inside: The boulderlike forms of both buildings are not simply the result of picturesque massing, but an expression of interior function.

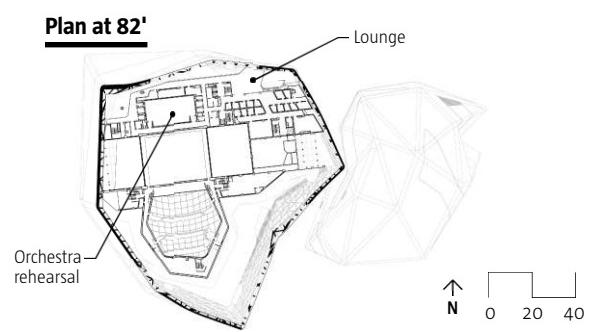
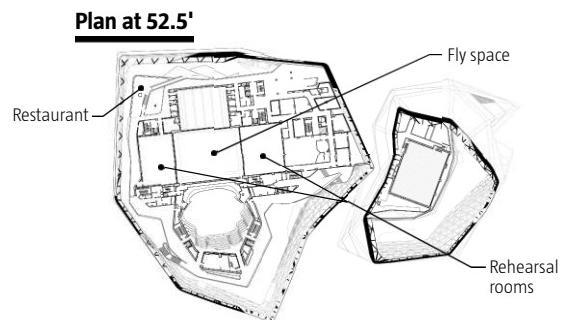
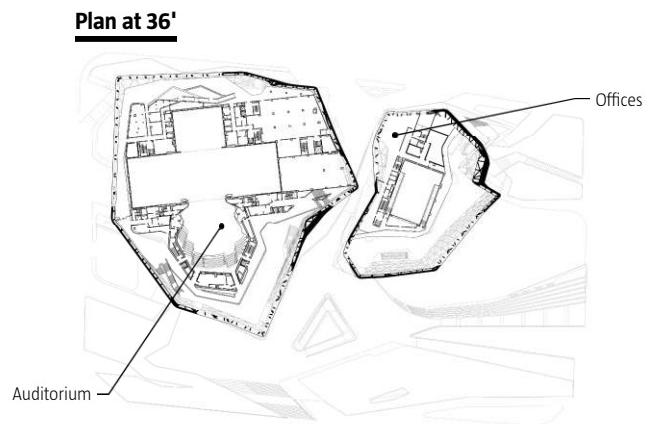
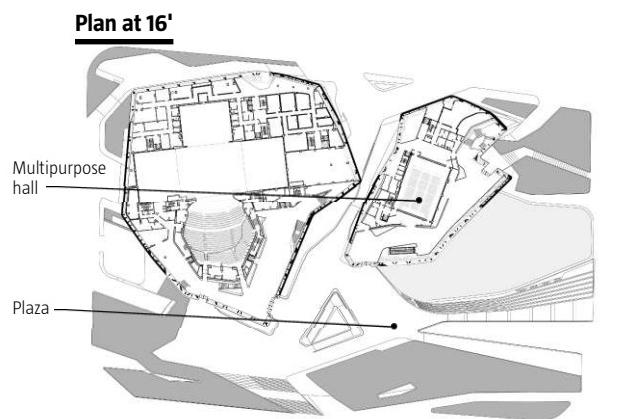
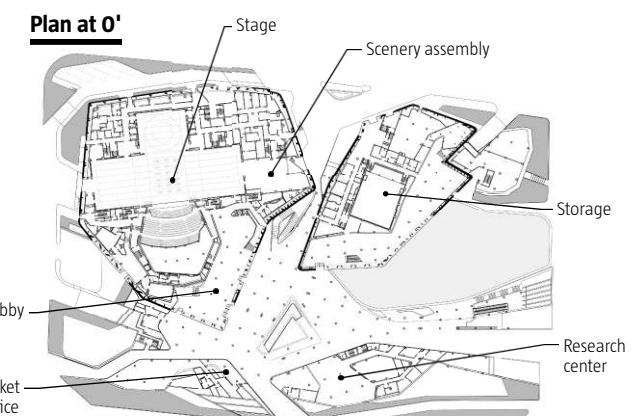
The design of the complex expands the scope of the two buildings to the edges of the site. Visitors entering their orbit immediately become subject to an orchestration of curves melding into counter curves, within a precinct of wonder that conditions them for the performances inside.

One little-noted role of an opera house is to prepare visitors to suspend disbelief by establishing a transitional experience between the real world outside and imaginary world within. In fulfilling this traditional role, Hadid's opera house keeps good company: hers arguably ranks with Garnier's in Paris, and Utzon's in Sydney as a defining moment in the evolution of the building type.

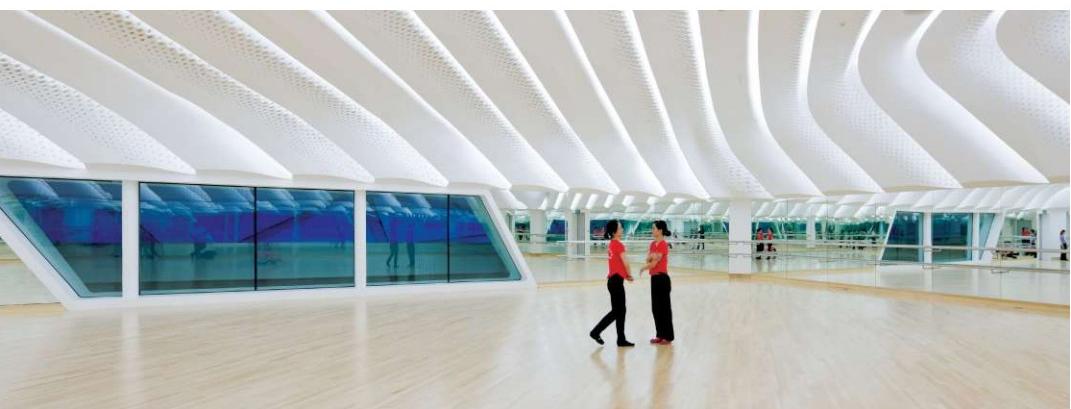
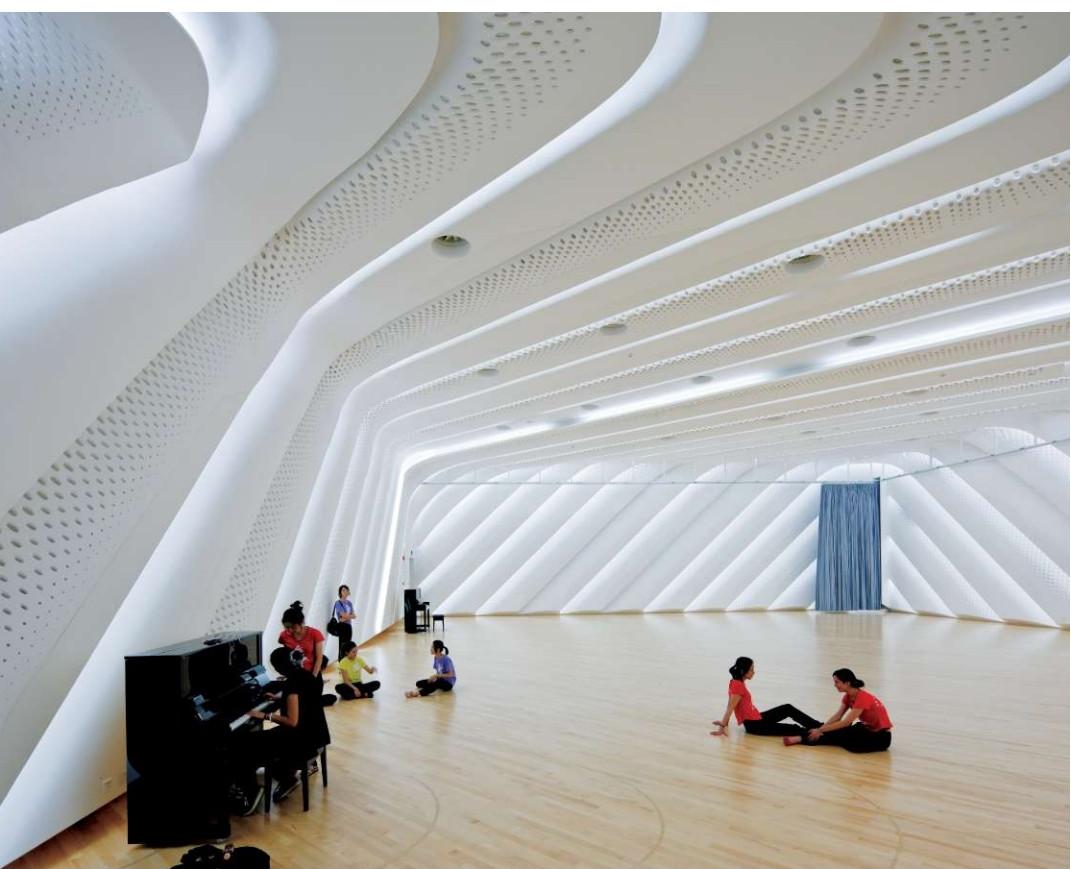
The Guangzhou Opera officially opened this February, but in Hadid's operatic environment, the overture really started at the edges of the site, where Hadid hit, on pitch, a very high C, long before the audience heard the first note.

DESIGN→HADID





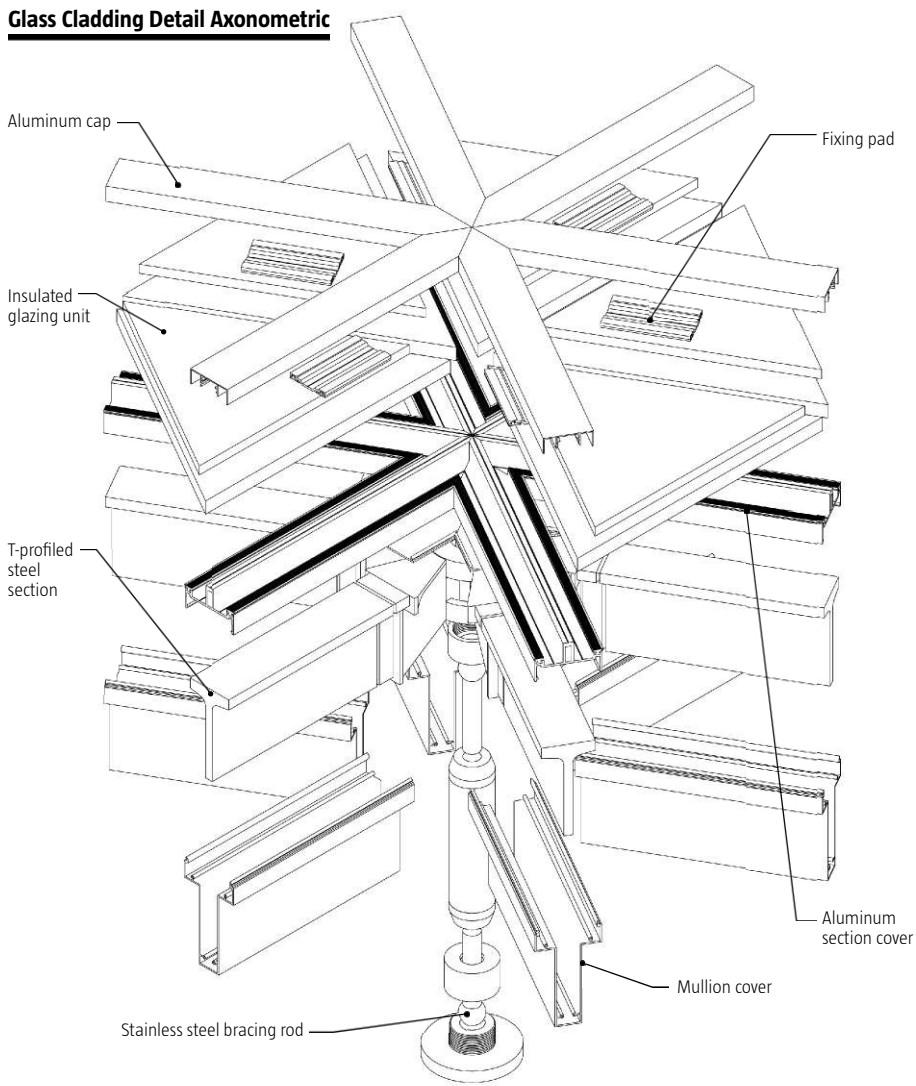
DESIGN→HADID





The smooth curving forms of the balconies in the main theater (opposite top) are formed from glass fiber-reinforced gypsum panels, cast in custom molds. The architects chose the material for its acoustic properties as well as its formability. The space, designed to showcase the varying tones of both Italian and Chinese opera, has a reverberation time of 1.4 to 1.6 seconds. The view from the 3,230-square-foot proscenium stage (this image) is dominated by the balconies and by 4,000 LED light fixtures scattered across the ceiling plane. A multipurpose room (opposite middle and bottom) provides rehearsal space for the various disciplines.

OPPOSITE TOP, THIS IMAGE, AND FOLLOWING PAGE: CHRISTIAN RICHTERS

Glass Cladding Detail Axonometric**TOOLBOX: STRUCTURE**

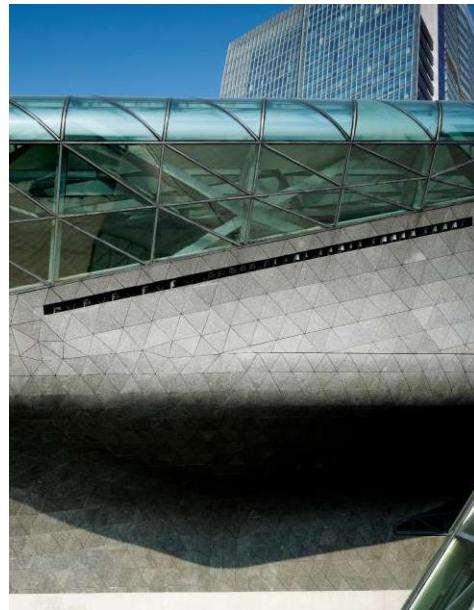
Building the poetic idea of structures as waterworn rocks required advanced computational technologies. "As usual," Schumacher says, "we used several different programs. We worked the outer crystalline form in Rhino and the inner, more complex and fluid surfaces inside the auditorium in Maya." Hadid, Schumacher, and Yao achieve organic forms through logarithms, through splines, blobs, NURBS, and particles organized by scripts of the dynamic systems of parametric design.

"The opera house structure," Schumacher explains, "is a volume within a volume." Housing the auditorium and fly tower is a concrete box with terraces cantilevering into the auditorium and lobby. The giant steel lattice that forms the exterior structure vaults out in all directions from this inner concrete volume, forming a shell with flat facets triangulated with steel members. The facets meet in rounded fillet edges that pivot each facet toward the next; the facets themselves converge in sprockets projecting from what Schumacher terms a "knot." These huge star-shaped joints—59 of which are used in the façade—are made of cast steel and were formed using an unexpectedly traditional technique: The joints were built out of wood that was then

embedded in sand to form the molds into which the steel for the final nodes was poured. These joints support the facets of the steel lattice, and the whole armature—knots, fillets, and lattice together—acts as a rigid surface.

The architects covered both structures in triangular tiles of rough granite—one black, the other white. "The tessellation on the flat surfaces is trivial," Schumacher says, "but covering the fillets is more complicated, requiring curved pieces of granite stitched together in tessellated patterns, like a football. The structural mesh was indifferent, so it could receive granite or glass. We used glass in fields that allow you to see the structure and the inside of the lobbies."

The geometry of the auditorium represents a different mathematical species altogether, developed in Maya as NURB surfaces (doubly curved surfaces morphing between convexity and concavity). Working in Maya, the architects sent digital files to the factory where the data was translated and milled into molds into which the final material—glass fiber-reinforced gypsum—could be cast. The forms were put together on site, forming continuous, seamless surfaces.

**Project Credits**

Project Guangzhou Opera House, Guangzhou, China

Client Guangzhou Municipal Government

Architect Zaha Hadid Architects, London—Zaha Hadid, Hon. FAIA (design); Patrik Schumacher, Woody K.T. Yao (project directors); Simon Yu (project leader); Christine Chow, Jason Guo, Ta-Kang Hsu, Filippo Innocenti, Junkai Jiang, Long Jiang, Yang Jingwen, Hink Kwong, Yi-Ching Liu, Lourdes Sanchez, Cyril Shing, Zhi Wang (project team); Christina Beaumont, Yael Brosilovski, Paola Cattarin, Hon Kong Chee, Achim Gergen, Lorenzo Grifantini, Viggo Haremst, Martin Henn, Jenny Huang, Filippo Innocenti, Tamar Jacobs, Flavio La Gioia, Christian Ludwig, Imran Mahmood, Graham Modlen, Matias Musacchio, Markus Planteu, Nina Safainia, Fernando Vera (competition team First stage); Adriano De Giannis, Yosuke Hayano, YanSong Ma, Barbara Pfennigstorf, Cyril Shing (Second stage)

Local Design Institute Guangzhou Pearl River Foreign Investment Architectural Designing Institute

Structural Engineers Shanghai Tongking Science and Technology Development Co.; Guangzhou Pearl River Foreign Investment Architectural Designing Institute

Façade Engineering King Glass Engineering

Building Services Guangzhou Pearl River Foreign Investment Architectural Designing Institute

Acoustic Consultants Marshall Day Acoustics

Theater Consultant China ENFI Engineering Group

Lighting Design Consultant Beijing & Light Co.

Project Management Guangzhou Municipal Construction Group Co. **Construction Management** Guangzhou Construction Engineering Supervision Co.

Cost Consultant Guangzhou Jiancheng Engineering Costing Consultant Office

Principal contractor China Construction Third Engineering Bureau Co.

Size 753,474 square feet (project); 456,314 square feet (site) **Cost** ¥1.38 billion (\$211.4 million)

Materials and Sources

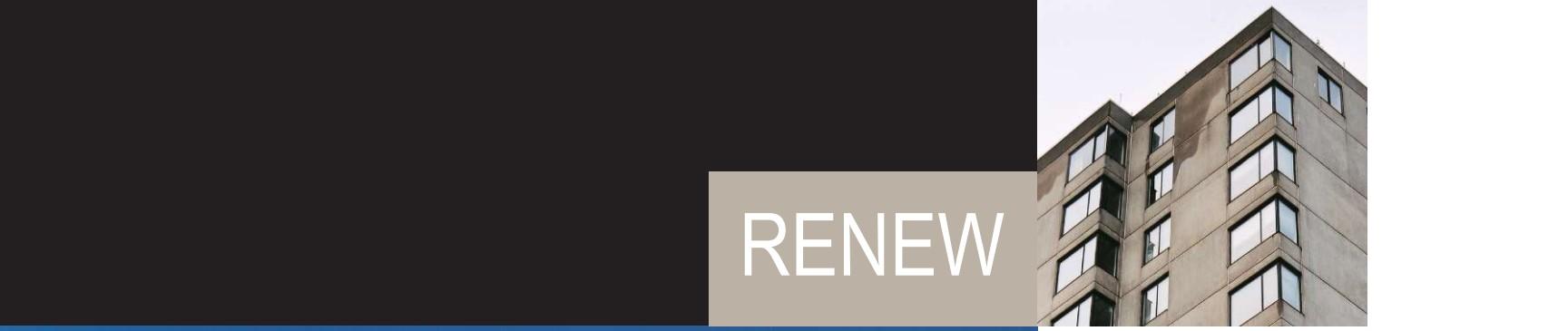
Solid Surface LG Hausys (Hi-Macs) himacs.eu

Flooring Nora Systems nora.com

Fabrics and Finishes Kvadrat (seating fabric) kvadrat.dk

Seating Shenge Industrial (auditorium seating) chinashenge.com

Wall Systems E-Grow (Shanghai) International Trading Co. (auditorium wall panels) egrow3dsolutions.com



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RAY AND DAGMAR DOLBY REGENERATION MEDICINE BUILDING

SAN FRANCISCO
RAFAEL VIÑOLY ARCHITECTS

TEXT BY MIMI ZEIGER
PHOTOS BY BRUCE DAMONTE,
COURTESY RAFAEL VIÑOLY ARCHITECTS

SET AMONG EUCALYPTUS trees and fog, the University of California at San Francisco's (UCSF) Parnassus campus clings precariously to the slope of San Francisco's Mount Sutro. At its center is the Health Sciences core, a pair of bland 16-story buildings constructed in the early 1960s that now also act as the front door to the UCSF Medical Center's newest laboratory: the Ray and Dagmar Dolby Regeneration Medicine Building (RMB), designed by Rafael Viñoly Architects. An elevator ride to the ninth floor of either of the old buildings and a walk down a nondescript corridor leads eventually to a gleaming steel and glass bridge—a vertiginous entry to the new labs.

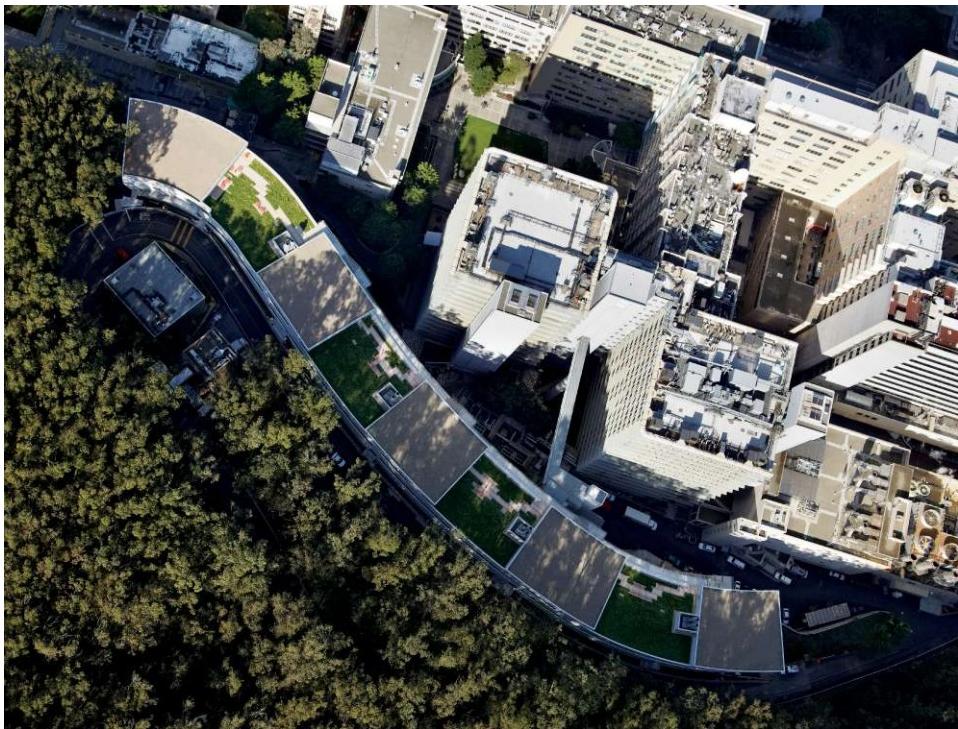
Viñoly won the commission in 2005 with an unlikely horizontal scheme. The 660-foot-long RMB stretches ribbonlike across the hillside, improbably balanced on steel space trusses and seismic base isolators. Specific criteria in the funding required the project to be fast-tracked, so a design/build team was created. The New York-based practice collaborated with DPR Construction and the local office of architect-of-record SmithGroup, a firm known for its institutional portfolio and for its forward-thinking use of integrated project delivery (IPD). According to the collaborating firms, using IPD shaved anywhere from 12 to 24 months off of the project's construction time.

The research center is tucked behind UCSF's hospital on a sliver of ground so steep that constructing anything on it seems like impossible folly. "It is a site



that essentially doesn't exist," Rafael Viñoly, FAIA, says. The two tall Health Sciences buildings, several loading docks, and utility plants encroach on one side, and a winding road leading through the eucalyptus trees to the top of Mount Sutro edges the other. The location was chosen because it was the last piece of available land on the dense urban campus. But for Viñoly, the site offered some intrigue. The RMB supports the kind of human embryonic stem cell (HESC) research that is nonfederally funded and required to be clearly restricted from other research. "We started the design in 2005, under the Bush administration. At that time, California was [one of] the only states pursuing stem cell research," Viñoly recalls. "I loved this idea of a conspiracy theory—that the building was placed there as if it was hiding behind the Parnassus campus." As such, when viewed from Golden Gate Park, the corrugated-metal-clad research center merely peeks out from the tree line.

However, the facility's form is an outgrowth of site constraints and programmatic requirement. The south façade hugs the curving topography, accounting for the sinuous floor plan. Viñoly's experience with science



The Regeneration Medicine Building's sinuous form (bottom left) hugs the edge of the University of California at San Francisco Parnassus campus and follows the topography of the hillside. The building is elevated above the sloped and curving site on a system of steel support members and seismic base isolators (top left). Outdoor staircases (this image) hung off the side of the building offer a direct circulation route between the stepped floor plates and green roofs.

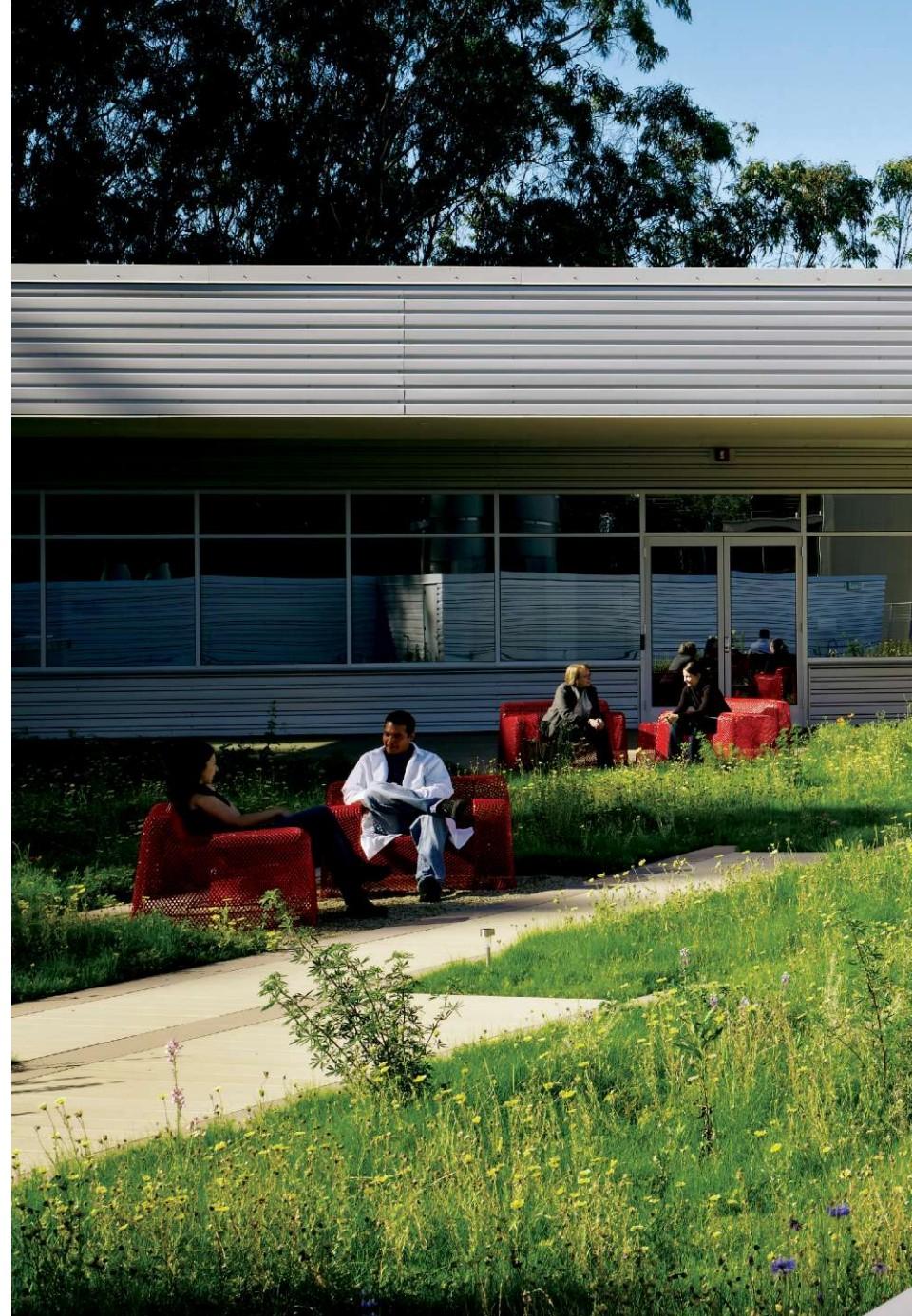




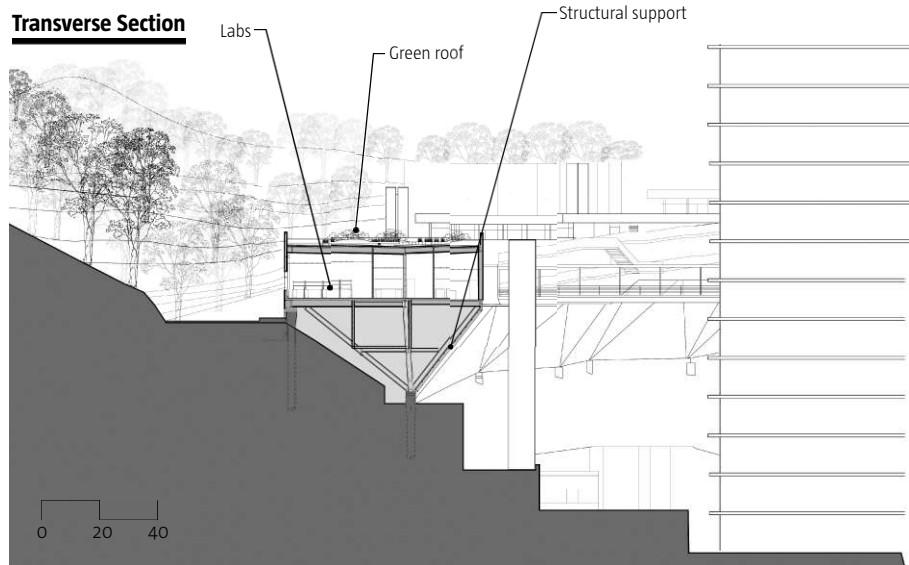
buildings led him to reject a vertical scheme where research groups would stack one on top of each other. He thought that placing the laboratory on a single level would foster more communication between teams. "Biological research is a completely unique environment; there is interactivity between groups and casual lines of development between subject areas," Viñoly says. "A successful design is measured in having contributed to an integrated environment for the scientists."

At RMB, four research areas step gently up the grade, one half-story at a time, following the road. Break areas, offices, and conference rooms occur at each level change. These are split-level moments where the various research groups can mingle and, since walls in the conference rooms and break areas are finished in erasable white board, exchange ideas. Flexible open-plan laboratories—18,367 square feet worth—are equipped with reconfigurable casework systems and quick-disconnect utilities, and complemented by another 15,539 square feet of equipment and support space. Large windows in the labs face south onto the hillside and a dense eucalyptus grove. The trees modulate direct daylight exposure, which contributed points to the building's targeted LEED Gold certification.

Suspended from the north façade are exterior ramps and staircases; navigating from half-level to half-level, they are the reason that there are few windows on this



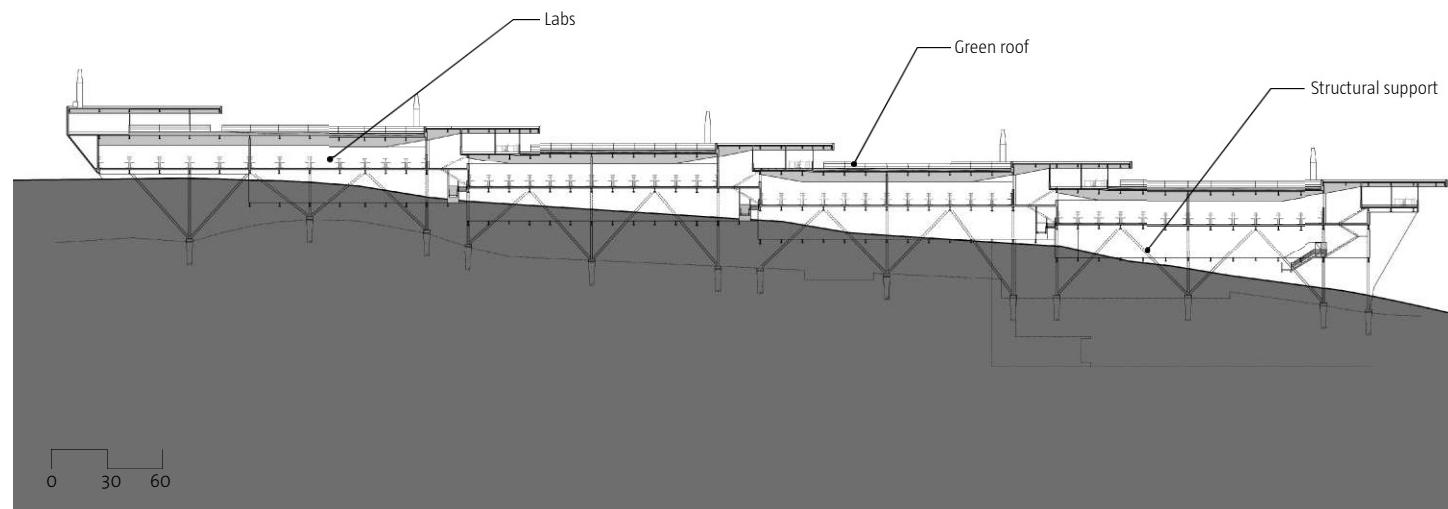
Transverse Section

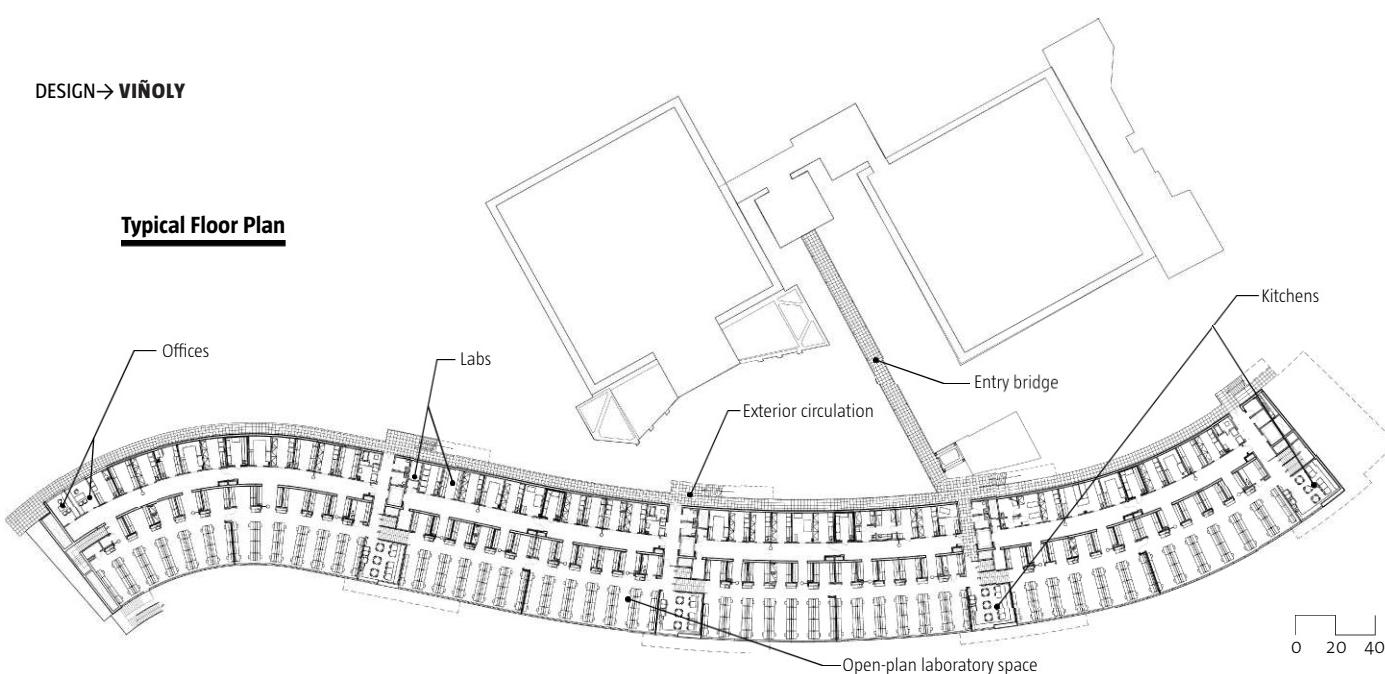




Tucked behind existing buildings (opposite), the RMB is accessed via a pedestrian bridge that connects to the ninth floor of a pair of connected 1960s glass-and-concrete structures. A series of green-roof terraces (this image) follows the building's stepped-down volumes. These public outdoor spaces afford views of Golden Gate Park and the Pacific Ocean beyond.

Longitudinal Section





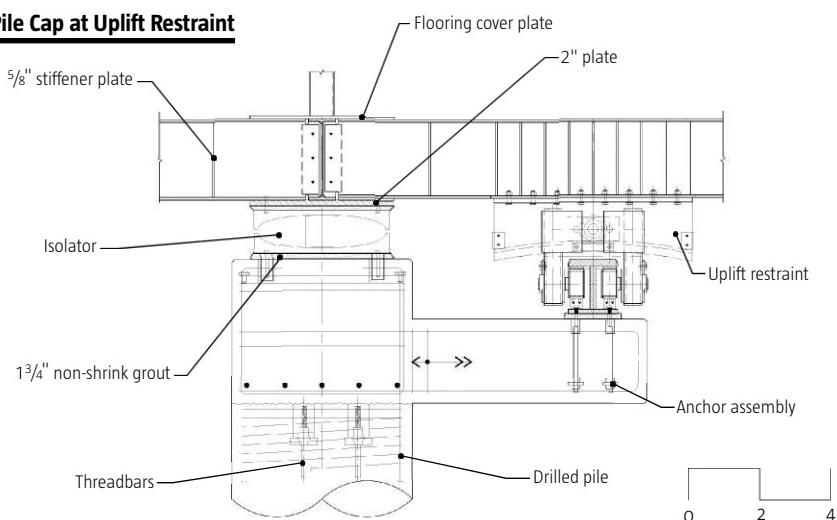
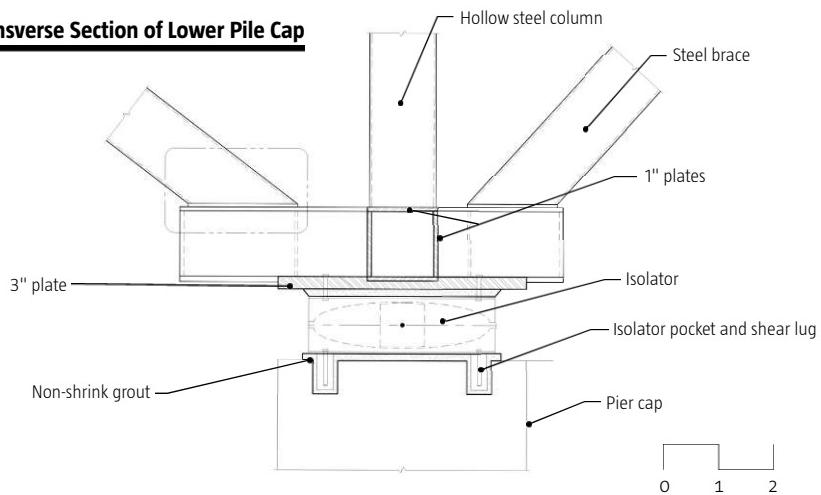
side of the building. Spectacular views of Golden Gate Park, downtown, and the Pacific Ocean transform the pedestrian walkways into dramatic overlooks. Steel-cable handrails set extra-high at 48-inches—6 inches above code—provide security without sacrificing openness. At the westernmost end of the building, offices and a large conference room hover over the city.

Roof terraces landscaped with native plantings top each of the laboratories. Like the exterior circulation, the gardens offer sweeping views, but according to Viñoly, they also provide more intimate gathering areas for the scientists. "There's functional continuity between all the principal investigation areas, but in contrast, each of the roughly 6,000-square-foot gardens becomes an individualized space, where each research group can recover some level of identity," he explains. UCSF scientists are already personalizing the terraces, which are accessible via the outdoor walkways. Humbly potted lemon trees and herbs have cropped up near tomato-red outdoor furniture. "The building is not just a machine," Viñoly remarks. "It adds to day-to-day life."



Predominantly filled with laboratory spaces (opposite bottom), the RMB's interiors step down as the building follows the slope of the hillside site. Where the floor plates split, meeting and dining rooms (opposite top) overlook labs on the level below. Informal gathering spaces (this image) perch on half-floors between the lab levels to encourage interaction between researchers on different teams.



Pile Cap at Uplift Restraint**Transverse Section of Lower Pile Cap****Project Credits**

Project University of California San Francisco Ray and Dagmar Dolby Regeneration Medicine Building, San Francisco

Client Regents of the University of California, UCSF—Michael Bade, AIA, (interim vice chancellor and campus architect); Michael Toporoff (project manager)

Design Architect Rafael Viñoly Architects, New York—Rafael Viñoly, FAIA (project designer); Jay Bargmann, AIA (project administrator); Chan-li Lin, AIA (project director); Josh Schroeder, AIA (project manager); Changhak Choi, Bethany Lundell Garver, Assoc. AIA, Frank Nan, AIA, Cory Wouk (project team)

Architect of Record SmithGroup, San Francisco—Bill Diefenbach, FAIA (principal-in-charge); Marianne O'Brien, AIA (project manager); Barbara Abecassis, Ryan Connolly, Michael Grage, Jeremy Holen, Jeff Miersch, Dawne David Pierre, Ray Sanchez, Nick Woodard (project team)

Interior Designer Rafael Viñoly Architects and SmithGroup

Mechanical/Plumbing Engineer Gayner Engineers (Design); ACCO Engineered Systems (of Record)

Structural Engineer Nabih Youssef Associates (Design); Forell/Elsesser Engineers (of Record)

Electrical Engineer Cammisa and Wipf Consulting Engineers (Design); Cupertino Electric (of Record)

Civil Engineer Sandis (Design); Creegan & D'Angelo (of Record)

Landscape Architect CMG Landscape Architecture (Design); Carducci & Associates (of Record)

Laboratory Planner Jacobs Consultancy

Fire Protection Cosco Fire Protection

Acoustics & Vibration Papadimos Group (Design); Colin Gordon & Associates (of Record)

Waterproofing Applied Materials & Engineering

Energy Modeling ACCO Engineered Systems

Design/Build Contractor DPR Construction—Michael Saks (project executive); Mark Sweat, Martin Vegas, Forrest Rassmussen (superintendents); Alec Pesant, Scott Chappelle, Kaitlin Muchison, Pat McDowell (project engineers)

Construction Manager Nova Partners—Dennis McCoy, Toon Jordan, Andy Springer

Estimating Cumming Corp., DPR Construction

Size 68,500 square feet

Cost \$91 million

Materials and Sources

Adhesives, Coatings, and Sealants Pecora Corp. pecora.com;

Tremco tremcosealants.com; Sika usa.sika.com

Carpet Mohawk Industries mohawkflooring.com

Ceilings Armstrong armstrong.com

Concrete DPR Construction dpr.com

Exterior Wall Systems Cold-formed studs; Morin (metal panels) morinincorp.com

Furniture, Fabrics, and Finishes Steelcase steelcase.com; Haworth haworth.com

TOOLBOX: STRUCTURAL SUPPORTS

In light of the disastrous earthquake and tsunami in Japan—and the fact that Tokyo and San Francisco are in similar shake zones—it's impossible to look at the Regeneration Medicine Building (RMB)'s dramatic structural supports and not question their seismic integrity. When Rafael Viñoly Architects conceived of a research facility precariously balanced on the nearly 45-degree slope of Mount Sutro, the San Francisco-based structural engineers Nabih Youssef Associates (NYA) developed a 600-foot-long steel space frame as a platform for the labs above. Base isolators are positioned on top of the cast-in-place concrete piers (which sink 45 to 80 feet deep into the earth) that are organized in two linear rows and act as the building's foundation. Eight uplift restraints are located on top of piers on the uphill side, and the steel frame is supported by friction pendulum seismic isolators and held down by tension isolators. Limiting the number of supports was crucial in order to minimize impact on the site, reduce the number of required foundations, and avoid having to relocate existing site utilities.

Base isolators act essentially like ball bearings—the system is rigid in the vertical direction, and moves horizontally in response to lateral forces. In case of an earthquake, the RMB may move sideways up to 23 inches, but the friction pendulum isolators dampen and dissipate ground shaking and reduce seismic force levels.

Because the building floats over the hillside, the engineers were able to forgo the costly perimeter isolation moat, generally required with this kind of system, for 95 percent of the perimeter. However, that same site condition heightens the possibility of the facility tipping over in an earthquake. To account for a 2-inch vertical lift and 4-inch "whipping" action, design/build partners Forell/Elsesser developed custom tension isolators to be used on the uphill side of the structure. The tension isolator—which accommodates the same 2-inch rise as a standard base isolator—can withstand 100 tons of uplift force; it moves 360 degrees on two opposing curved tracks with articulating rollers. Mason Walters of Forell/Elsesser conceived of and engineered these isolators, and, according to SmithGroup project manager Marianne O'Brien, AIA, created an inspired scaled mock-up of the system using wheels stolen from his daughter's Rollerblade.

Flooring Daltile (ceramic tile) daltileproducts.com;

Mannington Mills (VCT) mannington.com

Elevator ThyssenKrupp thyssenkrupp.com; Otis Elevator Co.

otisworldwide.com

Glass Viracon viracon.com

Gypsum USG Corp. usg.com

Insulation Johns Manville jmm.com; Dow Chemical Co.

building.dow.com

Lab Casework Thermo Fisher Scientific (Hamilton Lab Furniture)

hamiltonlab.com

Lighting Control Systems Lutron Electronics Co. lutron.com

Lighting Cree creelighting.com; Philips Day-Brite daybrite.com;

Philips Gardco Lighting sitelighting.com; IRL illuminating.com; Lithonia Lighting lithonia.com; Lutron Electronics Co. lutron.com; Philips

Morlite morlitesystems.com; Paramount Industries paramount-lighting.com; Philips McPhilben daybrite.com; Philips Omega omegalighting.com

Metal C.E. Toland & Son cetoland.com

Millwork Mission Bell Mfg. missionbell.com

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MUSEO SOUMAYA

MEXICO CITY
FREE

TEXT BY IAN VOLNER
PHOTOS BY BRUCE DAMONTE

IN MARCH, IN EVERY supermarket in Mexico City, architect Fernando Romero stared back at queuing shoppers from the cover of *Quién* magazine. To his right stood the gleaming paraboloid of his latest project, the Museo Soumaya in Mexico City, and over it a headline that read, "Slim's Soumaya: How Fernando Romero Realized His Father-in-Law's Dream."

That's Slim as in Carlos Slim, the man who last year edged out Bill Gates for the title of world's wealthiest individual. The Museo Soumaya, named for the telecom billionaire's late wife, stands as an enigmatic monument, like nothing else on the Mexico City streetscape. But though it may be Slim's "dream," the design is very much Fernando Romero's. An alumnus of Jean Nouvel's office as well as Rem Koolhaas', the architect founded his own firm 12 years ago at the age of 28, and to date, Fernando Romero Enterprise (FREE) has realized some 25 projects.

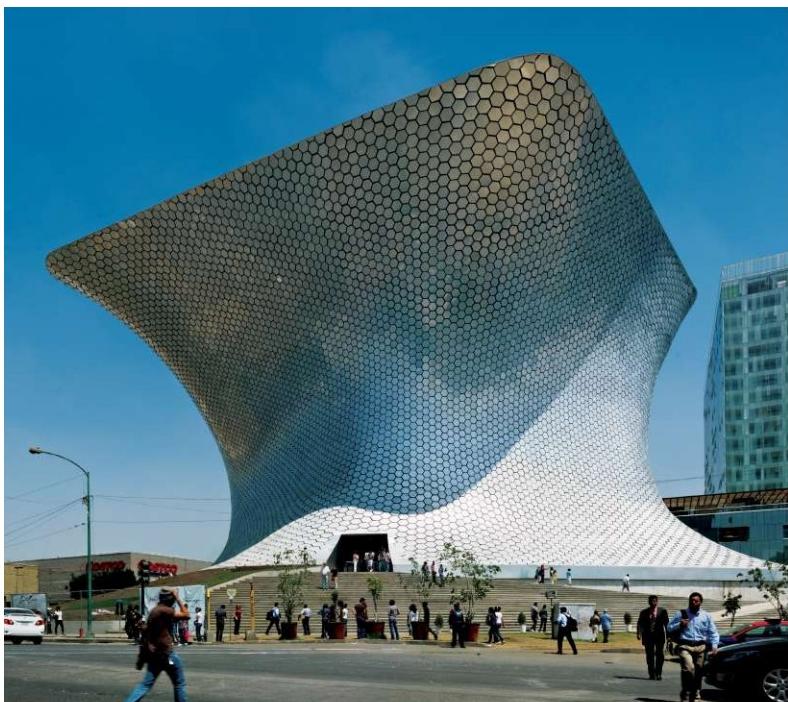
Romero's kin and client is also the country's biggest art collector, and for the last 17 years the works have been on display at a makeshift museum in the southern part of the city. Four years ago, Slim's conglomerate Grupo Carso acquired a 12-acre parcel near the corner of Presa Falcon and Miguel de Cervantes, at the time a dusty industrial yard





Defined by its mushroomlike form and its skin of locally sourced hexagonal aluminum tiles, the Museo Soumaya (this image and opposite top to bottom) is located in the Plaza Carso—developed by billionaire Carlos Slim and largely designed by his son-in-law, architect Fernando Romero.





home to a tire factory. Today, christened Plaza Carso, it's a district of modern office towers and public plazas—all of it planned, and most of the new buildings designed by Romero as a setting for Soumaya.

The architect was familiar, of course, with the collection that the museum was meant to house—including the largest number of works by sculptor Auguste Rodin outside France—but that was about all he and his team had to go on. When the office received the commission, “we weren’t given a museological program,” says Laura Domínguez, who’s overseeing the completion of the building interiors in collaboration with designer Andrés Mier y Teran. “All we knew was that it was to be six gallery floors and 16,000 square meters [172,223 square feet],” as well as the site where the museum had to fit in the master plan that the firm was devising for Plaza Carso. Even up to the very week before the doors were opened to the public, museum organizers were still piecing together their curatorial mission, what would go where and why.

As a consequence, no doubt, of this open-ended brief, the development of the building proceeded from the outside in. Experimenting with different formal conceits—staggered cubes and skewed and piled wedges were among the considered and discarded schemes—the designers settled on a configuration already familiar to most in the office. In 2005, FREE submitted a proposal for a landmark and observation tower for the Beijing Olympics: a looming toadstool of a building, the structure of which was to double as a dynamic screen for digital images that would roll and scroll across its surface. That project was a no-go, but its hyperbolic paraboloid outline became, with a little belt-tightening, the basic envelope for Soumaya.

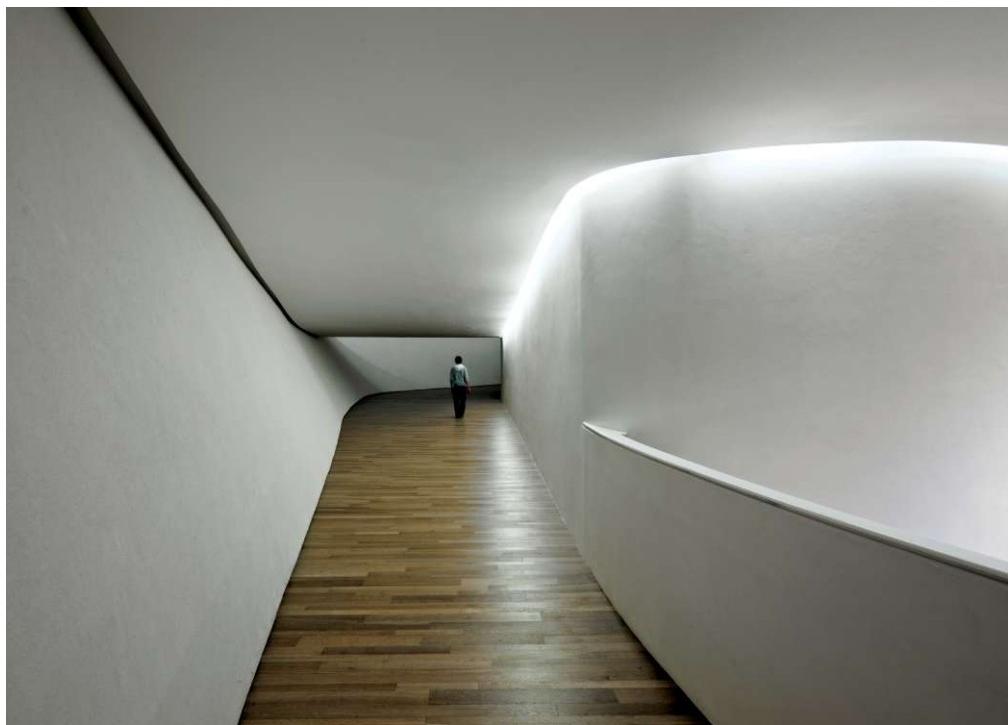
It’s a form that certainly stands out in what remains a very rough-and-ready part of town. One freight train, bound for a bread factory around the corner, still rumbles past at odd hours just steps from the front door; the adjacent plot is occupied by a Costco. As an urban artifact, the museum is a bit of a sphinx, its rhetoric willfully obtuse; but the designer readily admits that conventional symbolism wasn’t on his agenda. “When you do a conceptual project [like Beijing], you’re exercising a certain muscle—you make a discovery, and then it recurs,” says Romero.

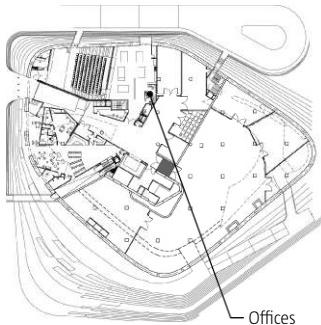
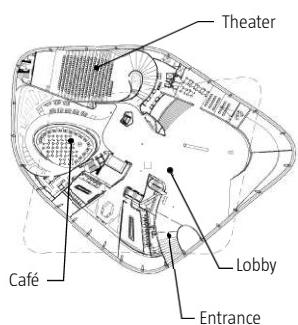
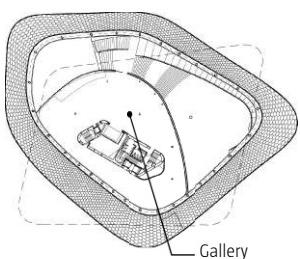
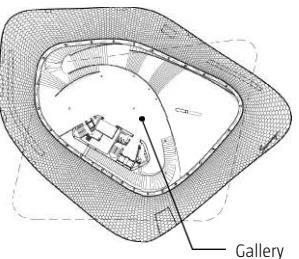
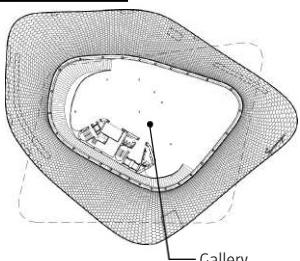
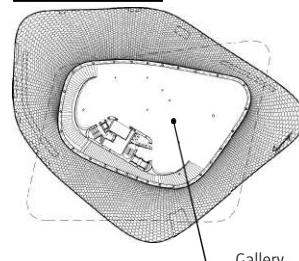
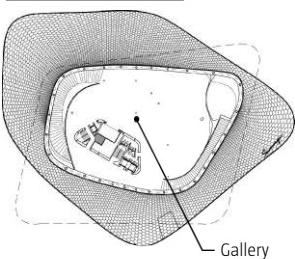
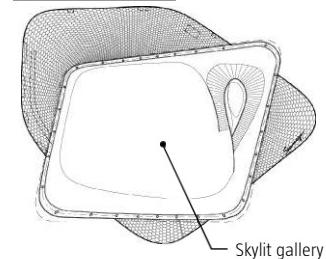
There is, however, one definitive outside referent for Soumaya—Frank Lloyd Wright’s Guggenheim Museum in New York. Romero deploys an almost identical sequence of interior ramps, though here they’re intended solely for circulation, not for exhibition: The open floors, interrupted only by a single slanted support column, are used as flexible showrooms for paintings and sculpture. This seems in part a corrective to Wright’s approach, since the suitability of his ramps for viewing art has always been in question; yet Soumaya also lacks the Guggenheim’s unity and abundant natural light, divided as it is into airless compartments. In any case, in choosing a model, Romero could hardly have shot higher than one of the world’s most famous museums.

But there is another visual cue that might also be read as a key to the design. It’s the first thing that visitors encounter on arrival: Rodin’s *The Thinker*, sitting alone in the wide atrium on Soumaya’s first floor. The sculpture’s torqued, robust profile, poised between thought and action, seems to make it a fairly obvious synecdoche for the brawny building in which it stands.

The museum's second-floor lobby (this image) is column-free, save for one slanted support that cuts into the gallery above. On the upper floors, artworks are shown either in display cases (with crafted circulation paths, opposite top) or hung on freestanding partitions (opposite middle), since art cannot be hung off of the curving, elastomeric-coated interior walls. Sinuous circulation ramps (opposite bottom) lead from floor to floor and gallery to gallery.





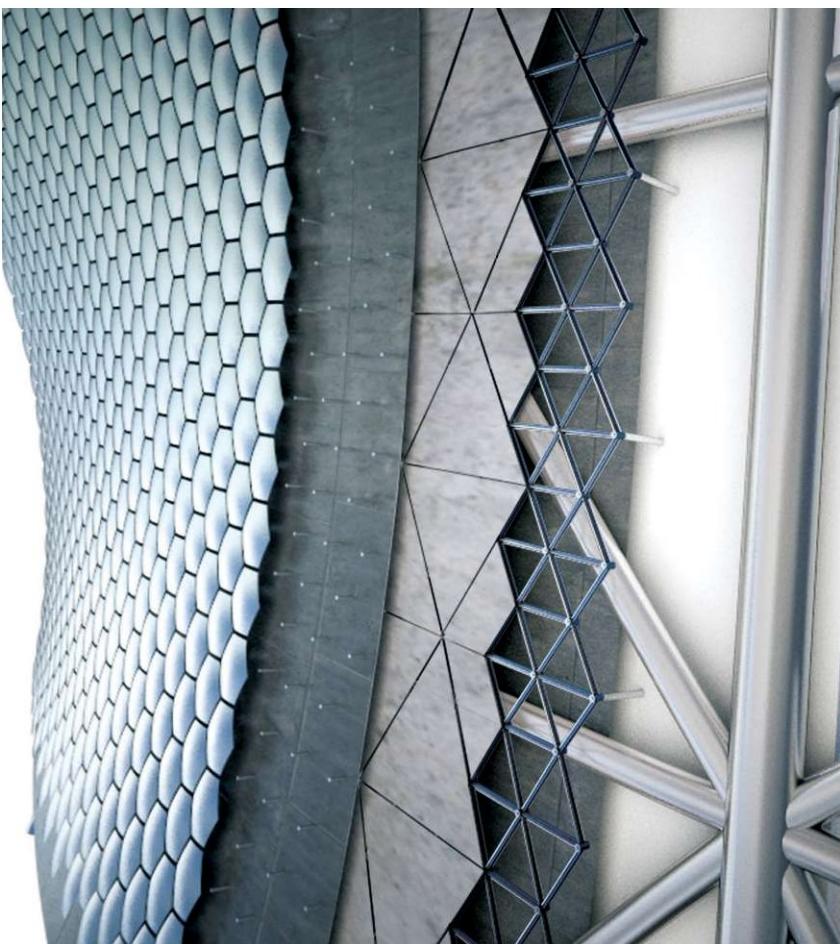
Ground-Floor Plan**Second-Floor Plan****Third-Floor Plan****Fourth-Floor Plan****Fifth-Floor Plan****Sixth-Floor Plan****Seventh-Floor Plan****Eighth-Floor Plan**

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A curving ramp leads from the seventh floor to the cavernous eighth-floor gallery (this image). A venue for showcasing Slim's large collection of Rodin and Dalí sculptures, the gallery is the only publicly accessible space in the museum with natural daylight, which filters in through a skylight.

Pile Cap at Uplift Restraint**Project Credits****Project** Museo Soumaya, Mexico City**Client** Fundación Carlos Slim

Architect FREE Fernando Romero Enterprise, Mexico City—Fernando Romero, Mauricio Ceballos (lead designers); Ana Gabriela Alcocer, Alan Auriolles, Iván Javier Avilés, Albert Beele, Eduardo Benítez, Max Betancourt, Libia Castilla, Ophelie Chassin, Víctor Chávez, Joaquín Collado, Francisco Javier de la Vega, Manuel Díaz, Laura Domínguez, Alberto Duran, Thorsten Englert, Daniel Alejandro Fariñas, Omar Geraldo Félix, Hugo Fernández, Matthew Fineout, Luis Flores, Raúl Flores, Luis Fuentes, Luis Ricardo García, Raúl García, Gerardo Galicia, Olga Gómez, Herminio González, Wendy Guillen, Elena Haller, Ana Paula Herrera, David Hernández, Jorge Hernández, Raúl Antonio Hernández, Susana Hernández, Wonne Ickx, Diego Eumir Jasso, Cecilia Jiménez, Saúl Miguel Kelly, Pedro Lechuga, Juan Andres López, Juan Pedro López, Ana Medina, Cynthia Meléndez, Guillermo Mena, Ignacio Méndez, Camilo Mendoza, Jesús Monroy, Mario Mora, Ángel Ortiz, Iván Ortiz, Kosuke Osawa, Cesar Pérez, Tiago Pinto, Sergio Rebello, Dolores Robles-Martínez, Alma Delfina Rosas, Rodolfo Rueda, Mariana Tafoya, Abril Tobar, Sappho Van Laer, Hugo Vela, Homero Yáñez, Dafne Zvi Zaldívar (project team)

Interior Designer FREE, MVT—Andrés Mier y Teran (CEO)**Structural Engineer** Colinas de Buen**Construction Manager** Inpros**General Contractor** Carso Infraestructura y Construcción**Lighting Designer** Lighteam—Gustavo Avilés**Façade Consultant** Gehry Technologies**Size** 336,946 square feet (including basement)**Cost** Withheld**Materials and Sources****Acoustical System Consultant** Omar Saad**Carpet** Brio Design**Concrete** Lacosa

Exterior Wall Systems Industrial Afiliara (aluminum hexagon cladding) industrialafiliada.com; Grace Construction Products (waterproof membrane) graceconstruction.com; Geometrica Design (galvanized steel plates, 3D structural mesh) geometrica.com; Swecomex (tubular columns) swecomex.com;

USG Corp. (Sheetrock) usg.com; Ypsa (polystyrene insulation, concrete plaster, elasticated plaster) ypsa.com.mx

Flooring Hankö (German white oak) hankogroup.com;**Alta Spain** (Greek marble)**Furniture** Industrias Ideal (auditorium seats) industriasideal.com;**ArqT** (carpentry)**Glass** Aluvisa aluvisa.com**HVAC** Dipro-Cysa www.cysa.com**Insulation** Ypsa ypsa.com.mx**Lighting** Lighteam lighteam.eu**Masonry and Stone** PC Constructores**TOOLBOX: SKIN**

Flowers tied with yarn: that's what Soumaya looks like under its skin. Around the building perimeter, 28 steel columns—built in segments that vary in width and position—rise from a concrete podium. These tall, tubular stalks are cinched and bound by a system of seven horizontal beams, one at each floor level, that bind the bundle together, helping bear up the floors and keeping the vertical columns from buckling outward. (The skeleton is open at the top save for an elaborate truss supporting a bubble skylight that brings daylight into the eighth-floor gallery.)

Over and around this structure wraps a nine-layer façade. With no apertures of any kind—except in the concrete base that houses the museum offices—the skin comprises, from outside in, a coat of hexagonal aluminum tiles, waterproofing layer, a series of galvanized steel plates, and a 3D mesh structure of hexagonal links. These materials clad the tubular steel structure on the exterior, but the layers continue on the other side of the supports to form the interior walls: another layer of 3D mesh, followed by a layer of gypsum panels, polystyrene insulation, concrete plaster, and finally a layer of Weatherlastic (an elastomeric wall coating) that forms the gallery walls, and from which, notably, art cannot be hung.

But the hallmark of the project is those hexagonal aluminum tiles that give the building its deflated-soccer-ball appearance. To hear the designers tell it, "nobody really knew" when the project began just how those more than 14,000 shiny scales would have to be shaped in order to adhere to the contours of such a highly irregular surface. After much prototyping, the firm finally arrived at a system of 49 discrete "families" of hexagons, with seven primary genera dominating the field. The result is not a perfectly contiguous shell, but a complex patina, the patterns of the reflective tiles alternating with the dark gaps of exposed weatherproofing snaking between them.

Worth noting, too, is the building's focus on domestically sourced materials. Carlos Slim specified the use of homegrown building supplies whenever possible: Mexican plaster coats the museum walls, and Mexican aluminum covers the exterior. The rolled steel piping used in those vertical stems is Mexican as well—manufactured, as it happens, by a wholly owned subsidiary of Grupo Carso.

Metal Iasa**Millwork** Hankö hankogroup.com; ArqT**Plumbing and Water System** Hubard y Bourlon**Roofing** Swecomex (steel structure) swecomex.com;**Lacosa** (concrete); Ypsa (coating) ypsa.com.mx**Wallcoverings** Plaster (tecnomuro); Weatherlastic (elasticated plaster)**Wayfinding** Recisa recisa.com**Windows, Curtainwalls, and Doors** AGR agrpuertasmetalicas.com; Dimeyco cestek-dimeyco.com.mx

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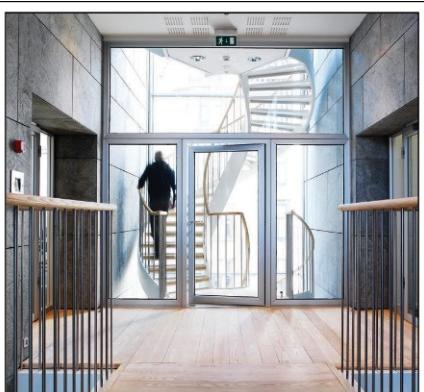
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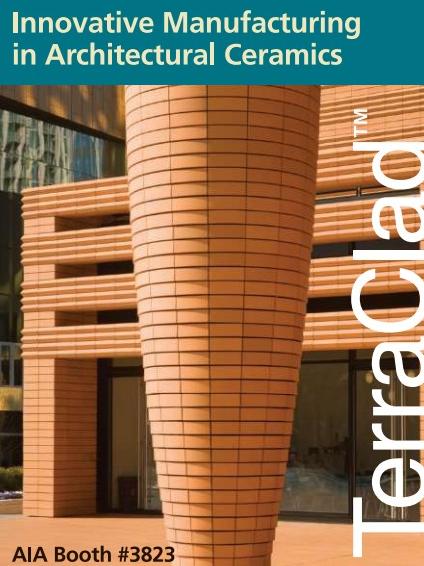
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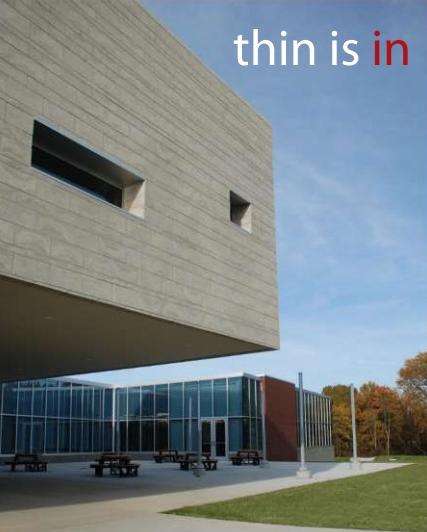
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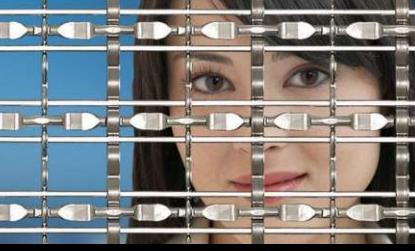
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MEANT AS A CATALYST for the redevelopment of downtown New Orleans and as an alternative to the wholesale clearance that had characterized urban renewal in the 1960s, Piazza d'Italia represented a new approach to urban design, one that modeled itself on the historic plazas of old Europe rather than on the heroic visions of European modernists. Designed by August Perez & Associates and the late Charles Moore, the piazza received a lot of attention for its neon-lit classical colonnades painted red, orange, and yellow; its stepped fountain in the shape of Italy; and its clock-tower gateway.

Although the plaza has undergone restoration, the deleterious effects of water and humidity remain evident in the fountain's broken stones and corroded metal. But more than 30 years later, the fascination with

and furor over the set-design quality of the architecture pales in comparison to what the project says about the difficulties facing New Orleans. Intended as a center of the city's Italian-American community, the original design showed the circular, midblock piazza surrounded by culturally related commerce: a trattoria, a pizzeria, and imported food and clothing shops.

Instead, Piazza d'Italia now stands mostly surrounded by parking lots, adjacent to a 21-story hotel that turns its back on the space, with one small gift shop that remains mostly closed. As such, the project has become a particularly appropriate symbol of the city, expressing, in its water-damaged landscape, the ruin that can come from inundation and, in its blank-slate surroundings, the possibilities that the future still holds for New Orleans. □

Steel IN RETAIL

Crate & Barrel. A company that began with a dream, one employee, and no cash register. Today, the company has 7,500 employees and 60 stores in markets across the U.S. John Moebes, AIA, NCARB is one of them. Architect, contractor, he saw an opportunity open up with Crate & Barrel and hasn't looked back since. As Director of Construction for the company, he offers a unique point of view about his world.

Crate&Barrel

BUILDING OWNER Crate & Barrel

STRUCTURAL ENGINEER Moore Lindner Engineering, Inc.

FABRICATOR SteelFab, Inc.

POINT OF VIEW "We don't build buildings. We sell merchandise and use buildings to do that. If you are going to understand us as an owner of buildings, you have to shed the idea of the core function of a building. For us, it's selling merchandise. That shift completely changed the way I looked at buildings as an architect."

ECONOMICS. "An architect or engineer typically has a brief relationship with a building – maybe 2% of its lifespan? How does 'economic performance' fit that involvement? What I learned is that the 2% can have a huge economic performance impact that's not always positive for the business. Architects believe the building will be there forever. That can lead to incorrect decisions from the business point of view."

LIFE CYCLE "If you looked to an architect or engineer and say, well, think of what you are doing in relation to lasting only 15 years, they would feel concerned. They are not trained to think of a building as a short-term commodity. However, we may not be able to stay in the building. What if the market shifts? For us to be paying for a 50 or 100 year building would be a disaster. This kind of thinking impacts decisions we make with structures."

STEEL "Steel matches our core business philosophy. It is the industry standard in retail for many reasons. It's the fastest material to erect; it's always cost competitive. A school opening early doesn't mean much to the bottom line. But a retail store? Steel is at the top of the list for speed to market."

FORGIVENESS "Steel is like my grandmother: it is always forgiving. You can fix steel; you can subtract and add in a way you cannot with other materials. There is no construction formula for our stores as in some retailers. At one point – pretty far along on this one building – we saw it was wrong. You don't want fifteen years of regret behind you. We made a decision to change it. With steel, you can do that, there is no penalty to make such changes."

STRATEGY "We don't have prototypes; our buildings are unique because of our real estate deals. We want to be in the best markets, which could be urban, suburban, maybe a historic building in New York, a lifestyle center in Charlotte. When I put together the strategy for a store, I would initially look for local experience. Steel changed that. We have developed an extremely effective relationship with a structural engineer and fabricator. For us, it is more cost effective to ship steel and have them travel to our sites than using local resources."

COLLABORATION "It's complicated. There are certain mind sets in the industry practices that don't benefit an owner. For example, the industry says there shouldn't be direct collaboration with fabricator and structural engineer. It's a kind of chain of command that we grew up with. Now we call them roadblocks. We go around them. Whether or not you believe it, the world is flat; there is a leveling of how people work and without collaboration, you always pay more."

FABRICATORS "A general contractor selected SteelFab on one project when we were building a tough structure. It was overly complicated from a construction perspective. SteelFab hurried to show us how we could save money in the future. That was a magic moment. Over the next year and a half, they were awarded two more stores, under two different contractors. We soon realized they were working together throughout the U.S."

STRUCTURAL ENGINEERS "SteelFab introduced us to Moore Lindner Engineering. It was another magic moment, because Moore Lindner understood we wanted a relationship – not just a dialog going back and forth. You have to find people who want to talk to each other. We are fortunate."

CORE VALUES "We have to have a building that is adaptable. Our deals are all different. From a branding perspective, we don't see our brand as static. We sell change; we bring in new product every year. Our floors shift continually. We want an ever-developing relationship with our customers. If we had a static building in every city, it wouldn't reinforce change as our concept, would it?"

FUTURE "The next fifteen year period will bring more change to buildings than anything we have seen. There is increasing pressure on all of us because no one has the money to build what we have to build. It will be on the AEs and owners to figure out how to get the next generation of buildings built. Steel, as an industry, thinks differently than other industries; it is progressive. It is the most innovative material we build with, far away above other materials when it comes to recycled content. It isn't publicly seen as green, but it is the most strategically green. It will be integral to the future."

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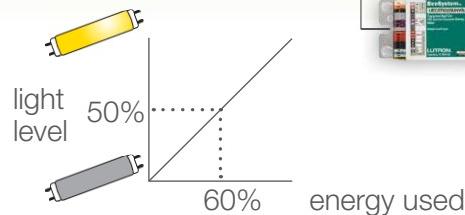
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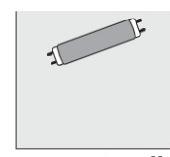
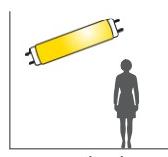
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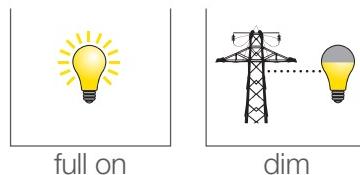
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